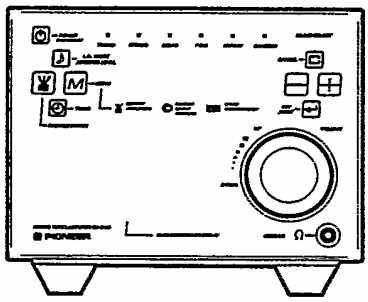
Service Manual

PIONEER®
The Art of Entertainment



ORDER NO.
RRV1228

STEREO TUNER AMPLIFIER

SX-Q180

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	SX−Q180		
KU/CA	○	AC120V	
ME	○	AC220−230V	
NB	○	AC230V	

● **This product is a component of a system.**
For the system composition, packing, accessories, instruction manuals ets., refer to the service manual RRV1229 for X−Q180/KU/CA.

CONTENTS

1. SAFETY INFORMATION ····· 2
2. PACKING AND PARTS LIST ····· 3
3. EXPLODED VIEWS AND PARTS LIST ····· 4
4. SCHEMATIC AND PCB CONNECTION DIAGRAMS ····· 7
5. PCB PARTS LIST ····· 35
6. BLOCK DIAGRAM ····· 41
7. ADJUSTMENTS ····· 42
8. DISASSEMBLY ····· 44
9. IC INFORMATION ····· 45
10. FL INFORMATION ····· 53
11. PANEL FACILITIES ····· 56
12. SPECIFICATIONS ····· 57

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1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

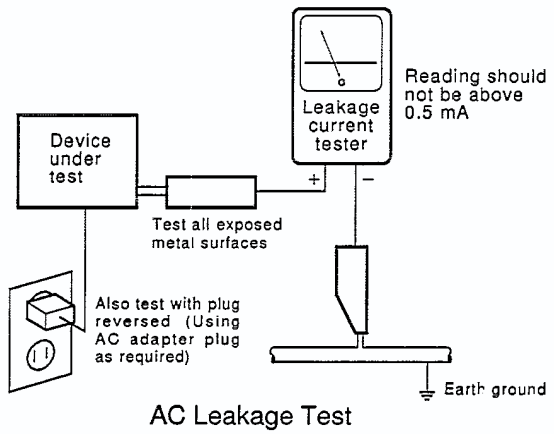
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Reading should not be above 0.5 mA
Leakage current tester
Device under test
+
−
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage , etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. PACKING AND PARTS LIST (FOR NB AND ME TYPES)

NOTES :

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *For the packing of KU/CA type, refer to the service manual RRV1229 for X−Q180/KU/CA.*

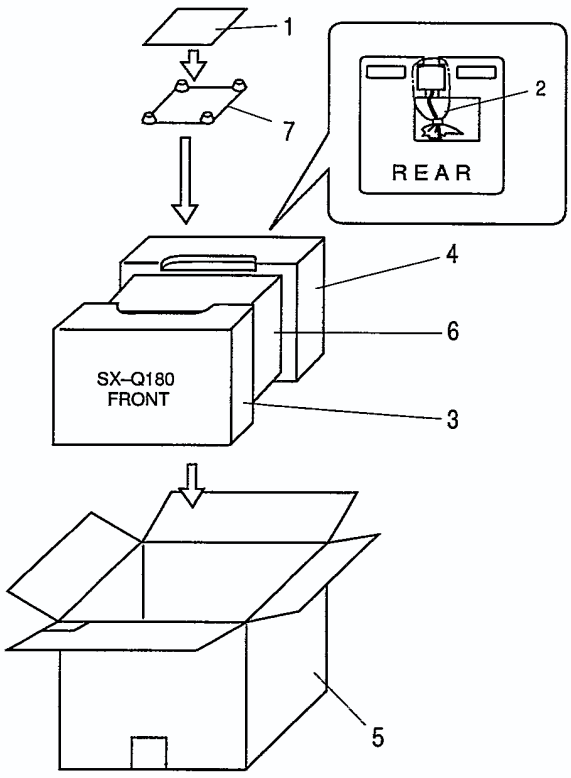
■ CONTRAST OF NB AND ME TYPES

SX−Q180/NB and ME have the same construction except for the following :

Mark	No.	Description	Part No.		Remarks
			SX−Q180		
			NB TYPE	ME TYPE	
	1	Operating instructions (English)	ARB7028	Not used	
	1	Operating instructions (German/Italian)	Not used	ARC7045	
	1	Operating instructions (English/French/Dutch)	Not used	ARE7026	
	1	Operating instructions (Swedish/Spanish/Portuguese)	Not used	ARE7044	
	2	Poly. bag	Z21−013	Not used	

■ PARTS LIST FOR NB TYPE

Mark	No.	Description	Parts No.
	1	OPERATING INSTRUCTIONS (English)	ARB7028
	2	POLY. BAG	Z21−013
	3	RE PROTECTER F	AHA7029
	4	RE PROTECTER R	AHA7030
	5	PACKING CASE	AHD7121
	6	PACKING SHEET	Z23−017
	7	INSULATOR PLATE RE	AMR7015



3. EXPLODED VIEWS AND PARTS LIST

NOTES :

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

■ CONTRAST OF KU/CA, ME AND NB TYPES

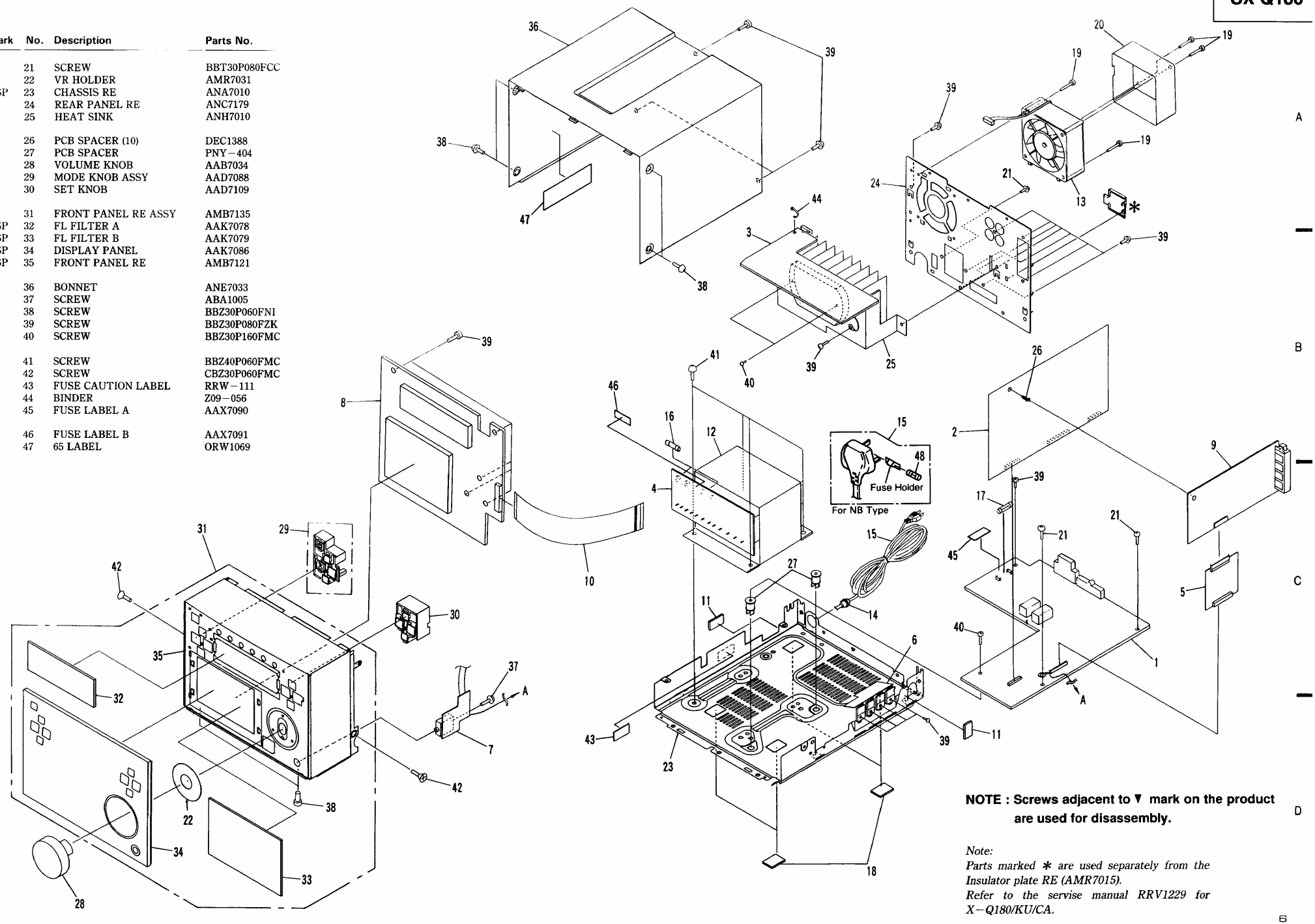
SX−Q180/KU/CA, NB and ME have the same construction except for the following :

Mark	No.	Description	Part No.			Remarks
			SX−Q180			
			KU/CA TYPE	ME TYPE	NB TYPE	
	1	MAIN unit	AWZ7494	AWZ7480	AWZ7480	
	2	PREB unit	AWZ7495	AWZ7481	AWZ7481	
	3	PAMP unit	AWZ7496	AWZ7482	AWZ7482	
	4	SECB unit	AWZ7497	AWZ7483	AWZ7483	
NSP	5	RDSJ unit	AWZ7469	AWZ7484	AWZ7484	
NSP	8	FRNT assy	AWX7011	AWX7010	AWX7010	
	9	FM/AM TUNER MODULE	AXQ1012	Not used	Not used	
	9	TUNER MODULE (RDS)	Not used	AXQ7013	AXQ7013	
	10	Lead card 26P	ADD7000	Not used	Not used	
	10	Lead card 29P	Not used	ADD7002	ADD7002	
⚠	12	Power transformer (AC120V)	ATS7038	Not used	Not used	
⚠	12	Power transformer (AC220−230V)	Not used	ATS7037	ATS7037	
⚠	14	Cord stopper	CM−22C	CM−22B	CM−22B	
⚠	15	Power cord with plug	PDG1002	PDG1003	PDG1055	
⚠	48	Fuse (T5A)	Not used	Not used	PEK1003	For power cord with plug
⚠	16	Fuse (1.25A, FU63, FU64)	VEK1016	Not used	Not used	
⚠	16	Fuse (T1.25A, FU63, FU64)	Not used	REK−101	REK−101	
⚠	17	Fuse (2.5A, FU11)	VEK1020	Not used	Not used	
⚠	17	Fuse (T1A, FU11)	Not used	REK−100	REK−100	
	24	Rear panel RE	ANC7179	ANC7176	ANC7177	
	31	Front panel RE assy	AMB7135	AMB7186	AMB7186	
NSP	34	Display panel	AAK7086	AAK7134	AAK7134	
	43	Fuse caution label	RRW−111	Not used	Not used	
	45	Fuse label A	AAX7090	AAK7086	AAK7086	
	46	Fuse label B	AAX7091	AAK7087	AAK7087	
	47	65 label	ORW1069	Not used	Not used	

■ PARTS LIST FOR KU/CA TYPE

Mark	No.	Description	Parts No.
	1	MAIN UNIT	AWZ7494
	2	PREB UNIT	AWZ7495
	3	PAMP UNIT	AWZ7496
	4	SECB UNIT	AWZ7497
NSP	5	RDSJ UNIT	AWZ7469
	6	REGB UNIT	AWZ7492
	7	HEPB UNIT	AWZ7471
NSP	8	FRNT ASSY	AWX7011
	9	FM/AM TUNER MODULE	AXQ1012
	10	LEAD CARD 26P	ADD7000
	11	ROLLER	DEB1043
⚠	12	POWER TRANSFORMER (T101)	ATS7038
	13	FAN MOTOR	AXM7004
⚠	14	CORD STOPPER	CM−22C
⚠	15	POWER CORD WITH PLUG	PDG1002
⚠	16	FUSE (1.25A/125V, FU63, FU64)	VEK1016
⚠	17	FUSE (2.5A/125V, FU11)	VEK1020
	18	CUSHION	PEB1131
	19	SCREW (3×36)	ABA7003
	20	FAN COVER	AMR7013

Mark	No.	Description	Parts No.
	21	SCREW	BBT30P080FCC
	22	VR HOLDER	AMR7031
NSP	23	CHASSIS RE	ANA7010
	24	REAR PANEL RE	ANC7179
	25	HEAT SINK	ANH7010
	26	PCB SPACER (10)	DEC1388
	27	PCB SPACER	PNY−404
	28	VOLUME KNOB	AAB7034
	29	MODE KNOB ASSY	AAD7088
	30	SET KNOB	AAD7109
	31	FRONT PANEL RE ASSY	AMB7135
NSP	32	FL FILTER A	AAK7078
NSP	33	FL FILTER B	AAK7079
NSP	34	DISPLAY PANEL	AAK7086
NSP	35	FRONT PANEL RE	AMB7121
	36	BONNET	ANE7033
	37	SCREW	ABA1005
	38	SCREW	BBZ30P060FNI
	39	SCREW	BBZ30P080FZK
	40	SCREW	BBZ30P160FMC
	41	SCREW	BBZ40P060FMC
	42	SCREW	CBZ30P060FMC
	43	FUSE CAUTION LABEL	RRW−111
	44	BINDER	Z09−056
	45	FUSE LABEL A	AAX7090
	46	FUSE LABEL B	AAX7091
	47	65 LABEL	ORW1069

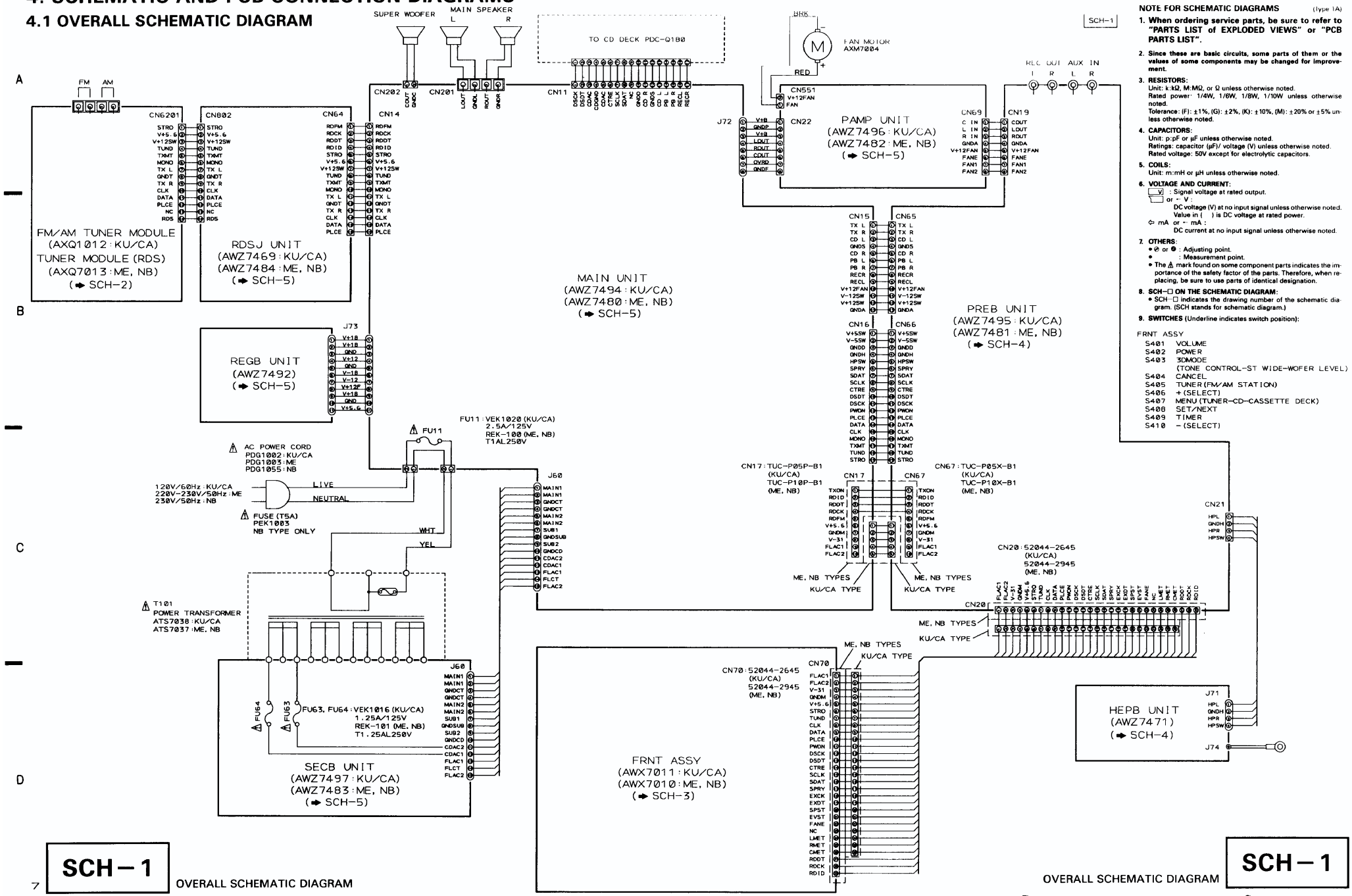


NOTE : Screws adjacent to ▼ mark on the product are used for disassembly.

Note:
Parts marked ✱ are used separately from the Insulator plate RE (AMR7015).
Refer to the servise manual RRV1229 for X−Q180/KU/CA.

4. SCHEMATIC AND PCB CONNECTION DIAGRAMS

4.1 OVERALL SCHEMATIC DIAGRAM



NOTE FOR SCHEMATIC DIAGRAMS (Type 1A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   V : Signal voltage at rated output.
   or ← V :
   DC voltage (V) at no input signal unless otherwise noted.
   Value in ( ) is DC voltage at rated power.
   ⇨ mA or ← mA :
   DC current at no input signal unless otherwise noted.
7. **OTHERS:**
   • ⊘ or ● : Adjusting point.
   • ▭ : Measurement point.
   • The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH-□ ON THE SCHEMATIC DIAGRAM:**
   • SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

FRNT ASSY

S401	VOLUME
S402	POWER
S403	3DMODE
	(TONE CONTROL-ST WIDE-WOFER LEVEL)
S404	CANCEL
S405	TUNER (FM/AM STATION)
S406	+ (SELECT)
S407	MENU (TUNER-CD-CASSETTE DECK)
S408	SET/NEXT
S409	TIMER
S410	- (SELECT)

PCB – 1

4.2 TUNER MODULE

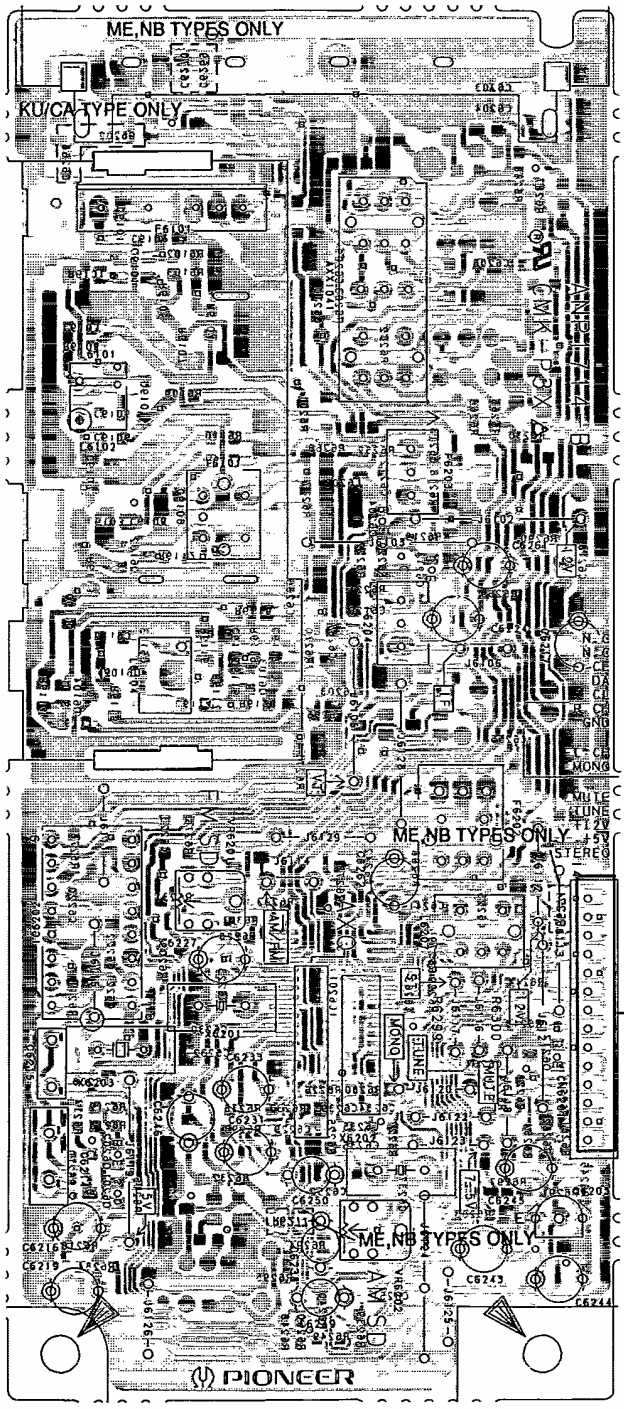
FM\AM TUNER MODULE (KU\CA type)
TUNER MODULE (RDS) (ME and NB types)

● This diagram is viewed from the foil side.

PCB–1

4.2 TUNER MODULE

FM/AM TUNER MODULE (KU/CA type)
TUNER MODULE (RDS) (ME and NB types)



Q6101
Q6204
Q6102 Q6214
Q6103
Q6104
VR6201
IC6202
IC6201
Q6217
Q6202
Q6201
Q6203 VR6202

To RDSJ unit CN802

NOTE FOR PCB DIAGRAMS:
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

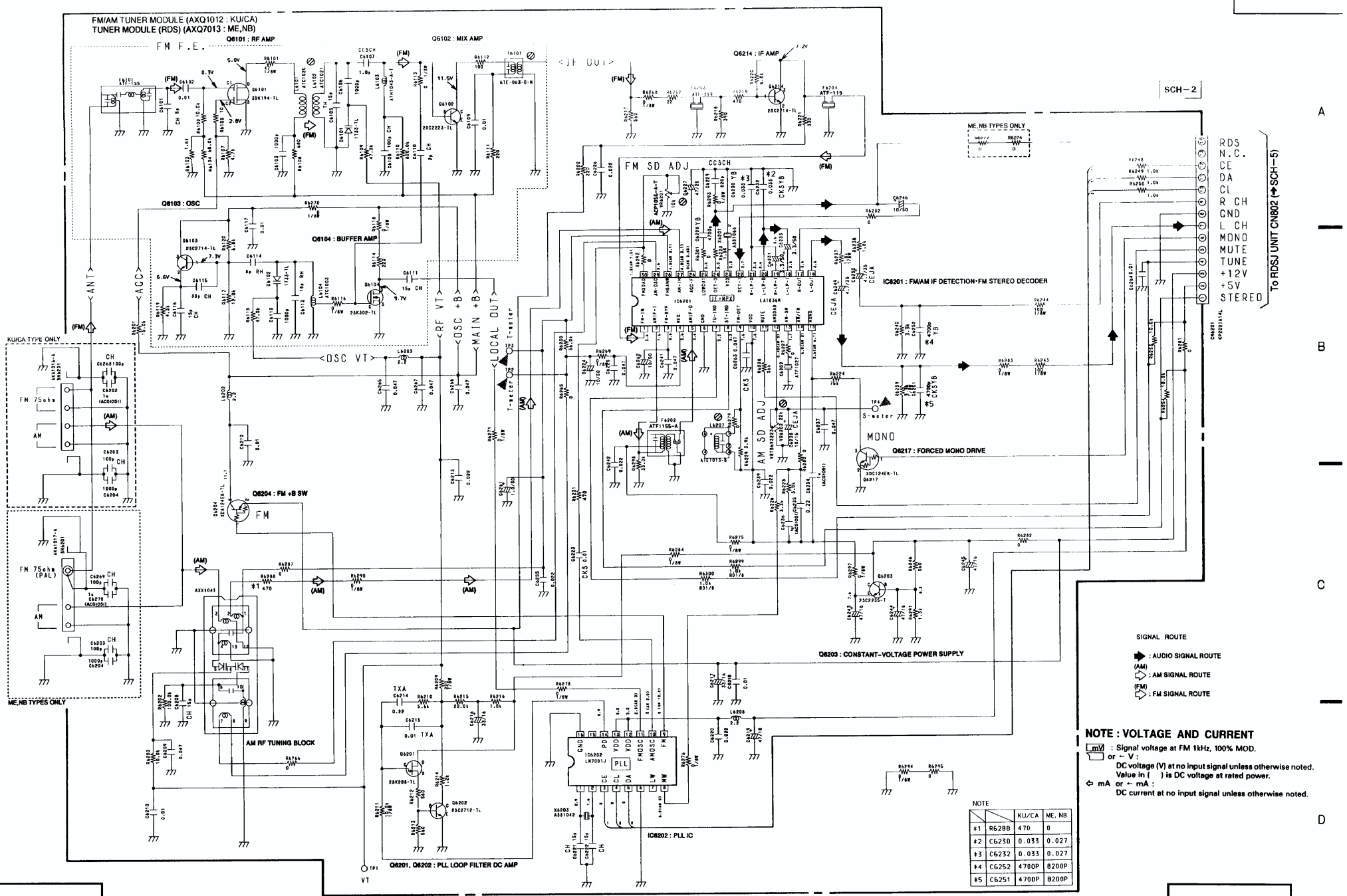
Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
Q504 E Q504	Q504 Q504	Transistor
D203 D203	D203	Diode
C513 C513	C513	Capacitor (Polarized)

3. The transistor terminal marked with E or ⊏ shows the emitter.
4. The diode terminal marked with ◎ or ⊐ shows cathode side.
5. The capacitor terminal marked with ◎ or ⊏ shows negative terminal.

NOTE FOR PCB DIAGRAMS:
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3- terminal regulator

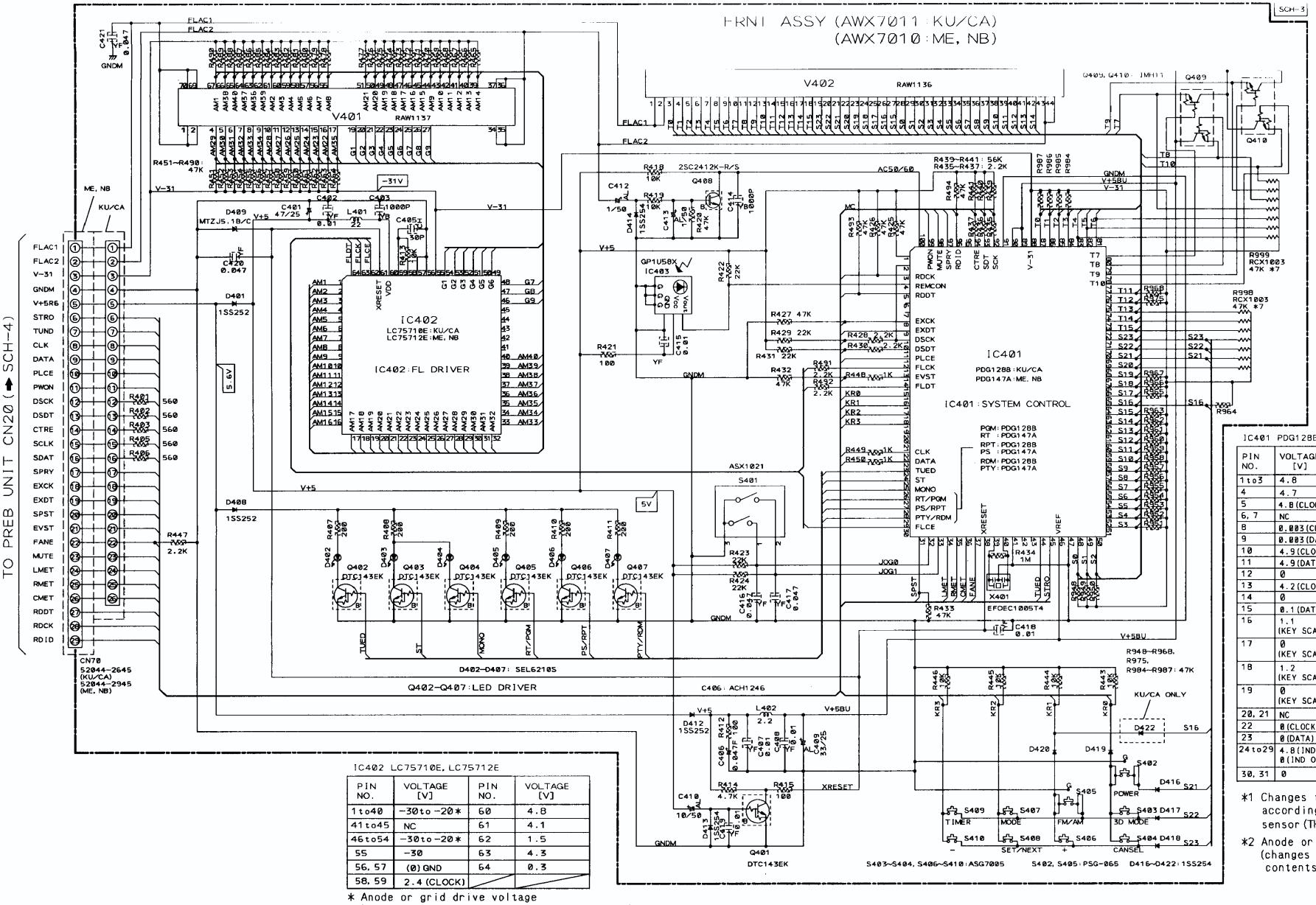
• This diagram is viewed from the mounted parts side.



NOTE

		KU/CA	ME, NB
✱1	R6288	470	0
✱2	C6230	0.033	0.027
✱3	C6232	0.033	0.027
✱4	C6252	4700P	8200P
✱5	C6251	4700P	8200P

4.3 FRNT ASSY



IC402 LC75710E, LC75712E

PIN NO.	VOLTAGE [V]	PIN NO.	VOLTAGE [V]
1 to 40	-30 to -20 *	60	4.8
41 to 45	NC	61	4.1
46 to 54	-30 to -20 *	62	1.5
55	-30	63	4.3
56, 57	(0) GND	64	0.3
58, 59	2.4 (CLOCK)		

* Anode or grid drive voltage
(changes according to the display contents)

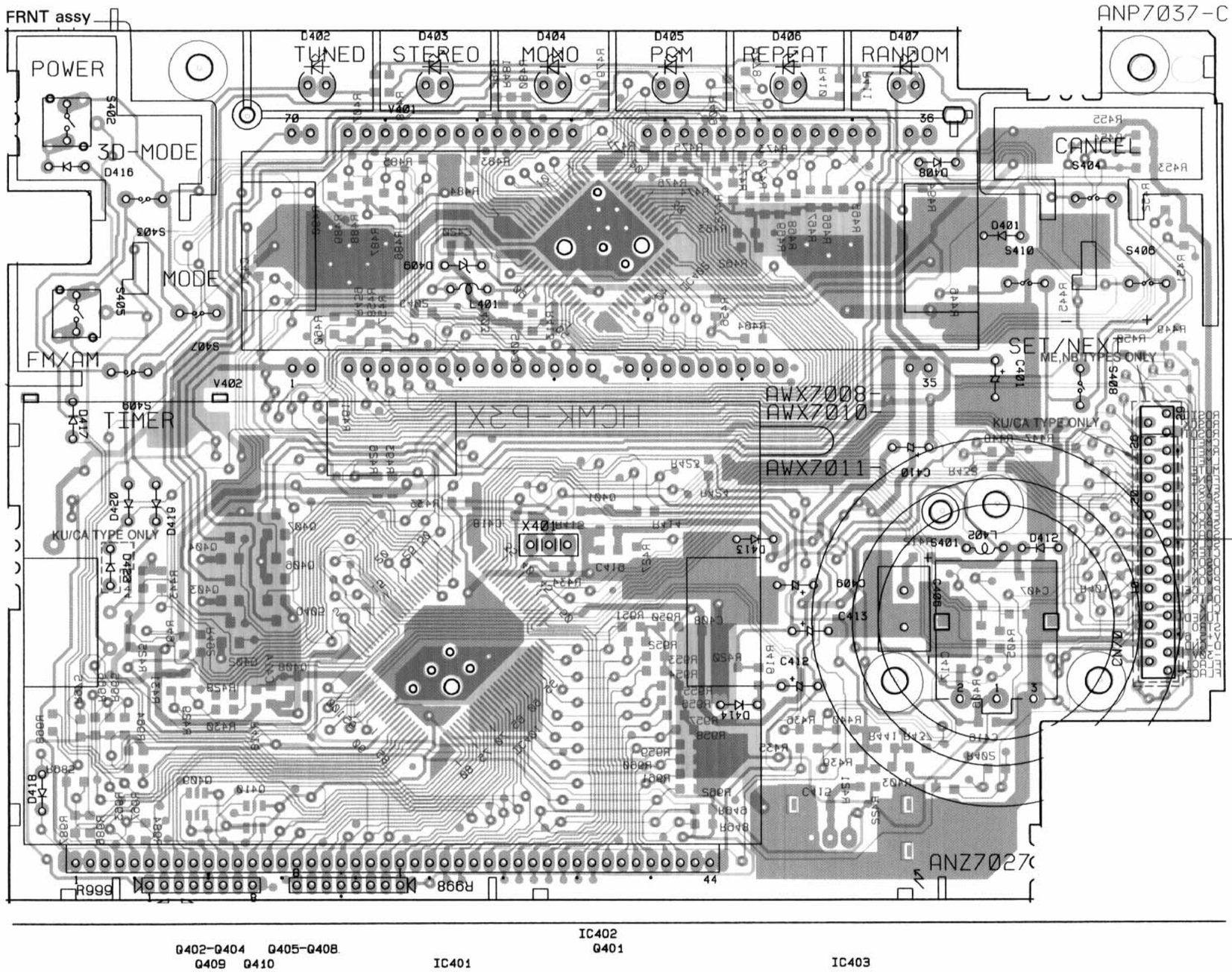
IC401 PDG128B, PDG147A

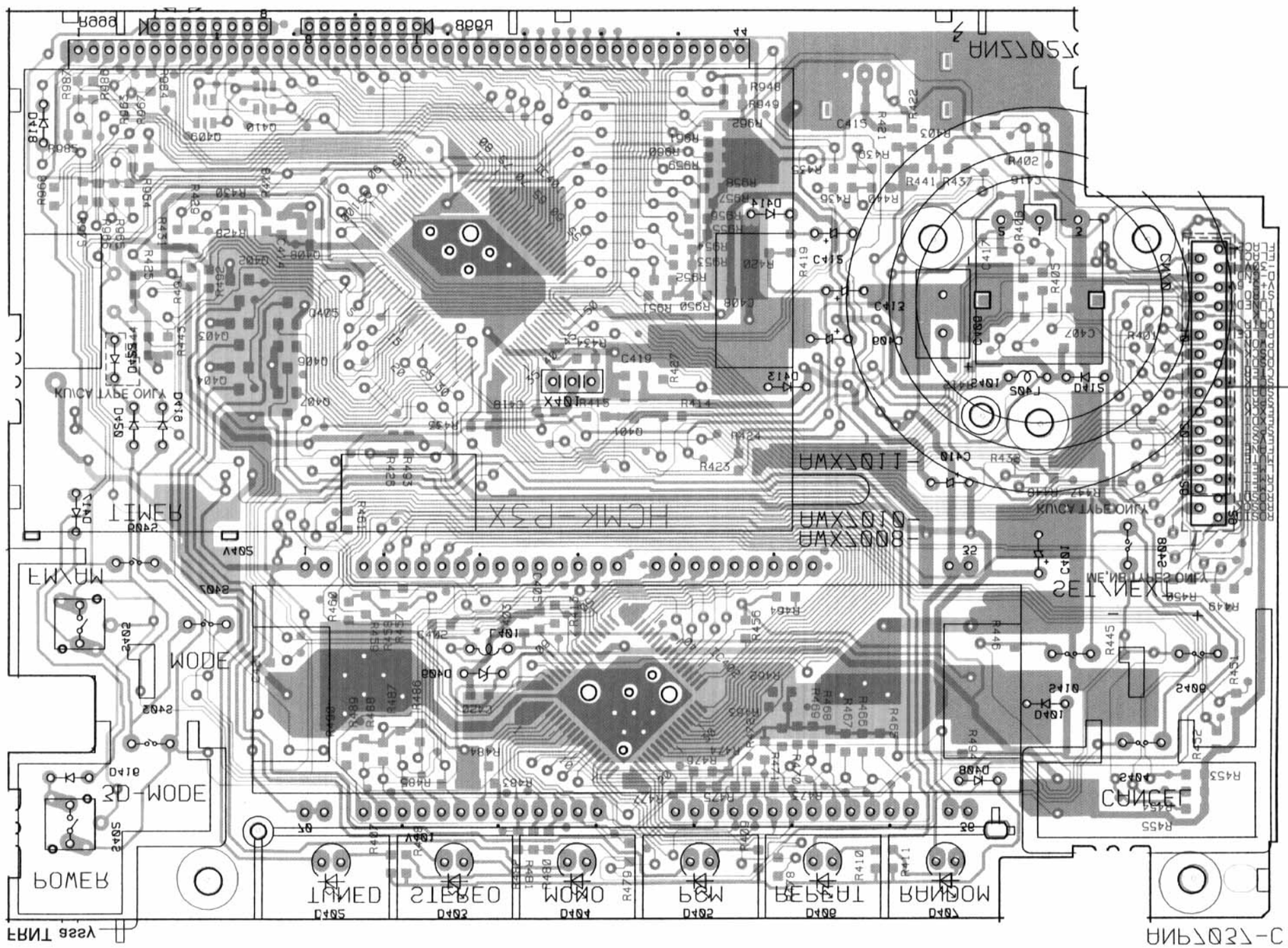
PIN NO.	VOLTAGE [V]	PIN NO.	VOLTAGE [V]
1 to 3	4.8	32, 33	4.8
4	4.7	34 to 36	0 (Non Signal)
5	4.8 (CLOCK)	37	1.7 *1
6, 7	NC	38	4.1
8	0.003 (CLOCK)	39	4.5 (CLOCK)
9	0.003 (DATA)	40	5.0 (CLOCK)
10	4.9 (CLOCK)	41	0 (GND)
11	4.9 (DATA)	42, 43	NC
12	0	44 to 46	4.8
13	4.2 (CLOCK)	47	0 (GND)
14	0	48 to 87	-30 to -16 *2
15	0.1 (DATA)	88	-30
16	1.1 (KEY SCAN)	89, 90	4.8
		91	0 (GND)
17	0 (KEY SCAN)	92	4.8 (CLOCK)
		93	4.8 (DATA)
18	1.2 (KEY SCAN)	94	4.8
		95	NC
19	0 (KEY SCAN)	96	4.8
		97	4.3
20, 21	NC	98	0
22	0 (CLOCK)	99	4.6
23	0 (DATA)	100	2.5 (AC PULSE)
24 to 29	4.8 (IND ON) 0 (IND OFF)		
30, 31	0		

*1 Changes from about 1 to 4V according to the temperature sensor (TH501).

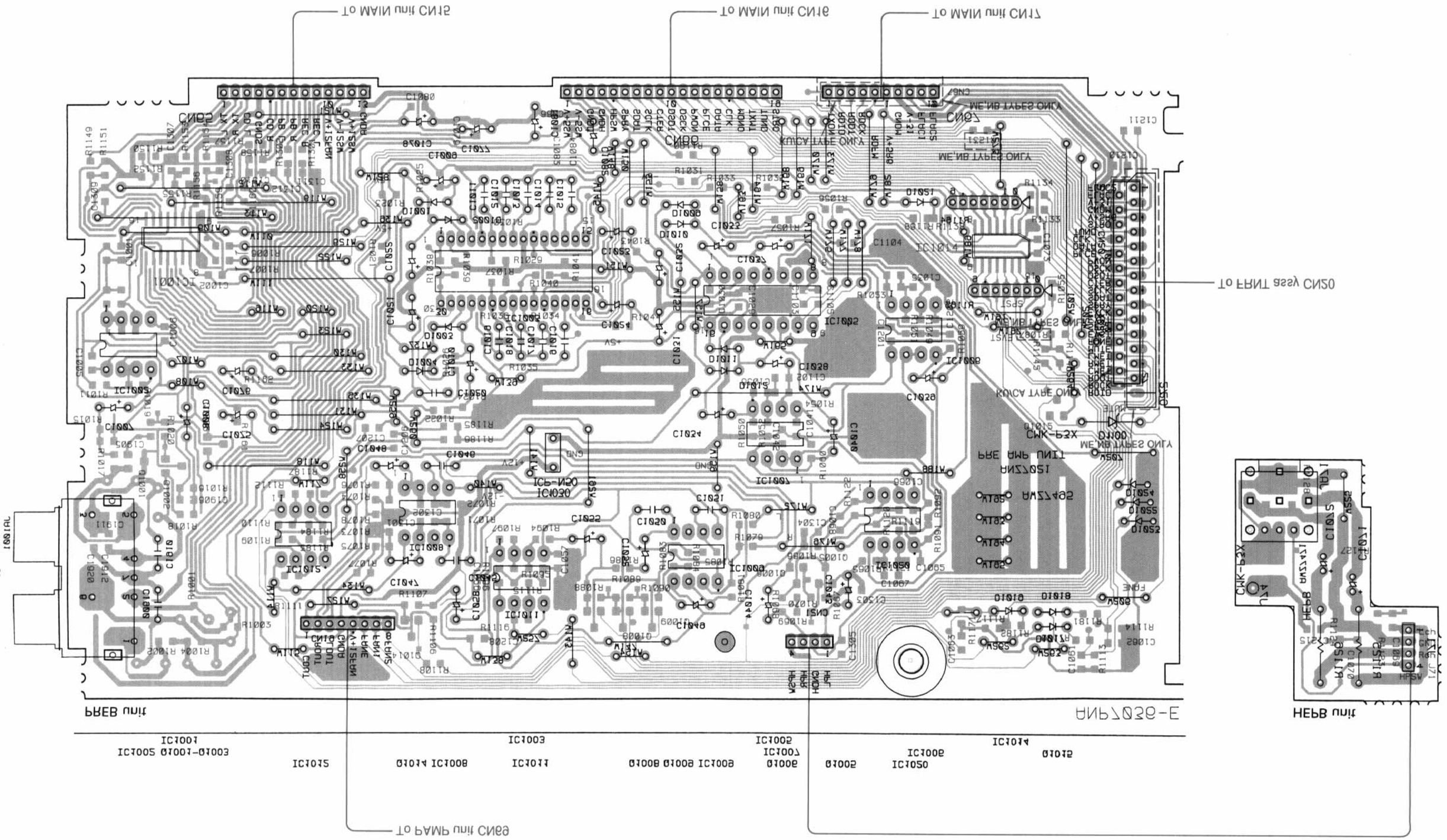
*2 Anode or grid drive voltage (changes according to the display contents)

- This diagram is viewed from the pink colored foil side.
- This PCB is double sided.





- This diagram is viewed from the gray colored foil side.
- This PCB is double side.

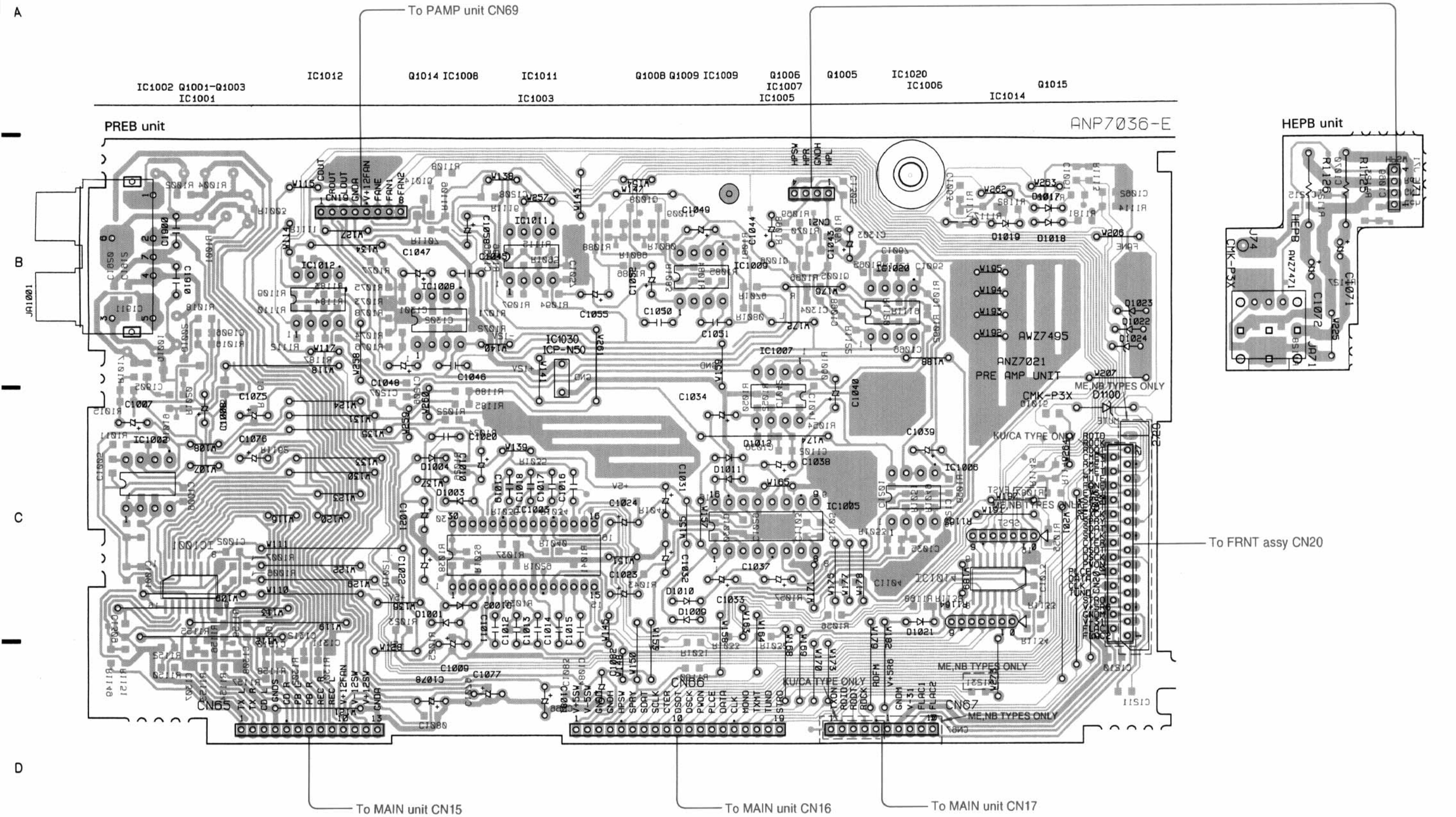


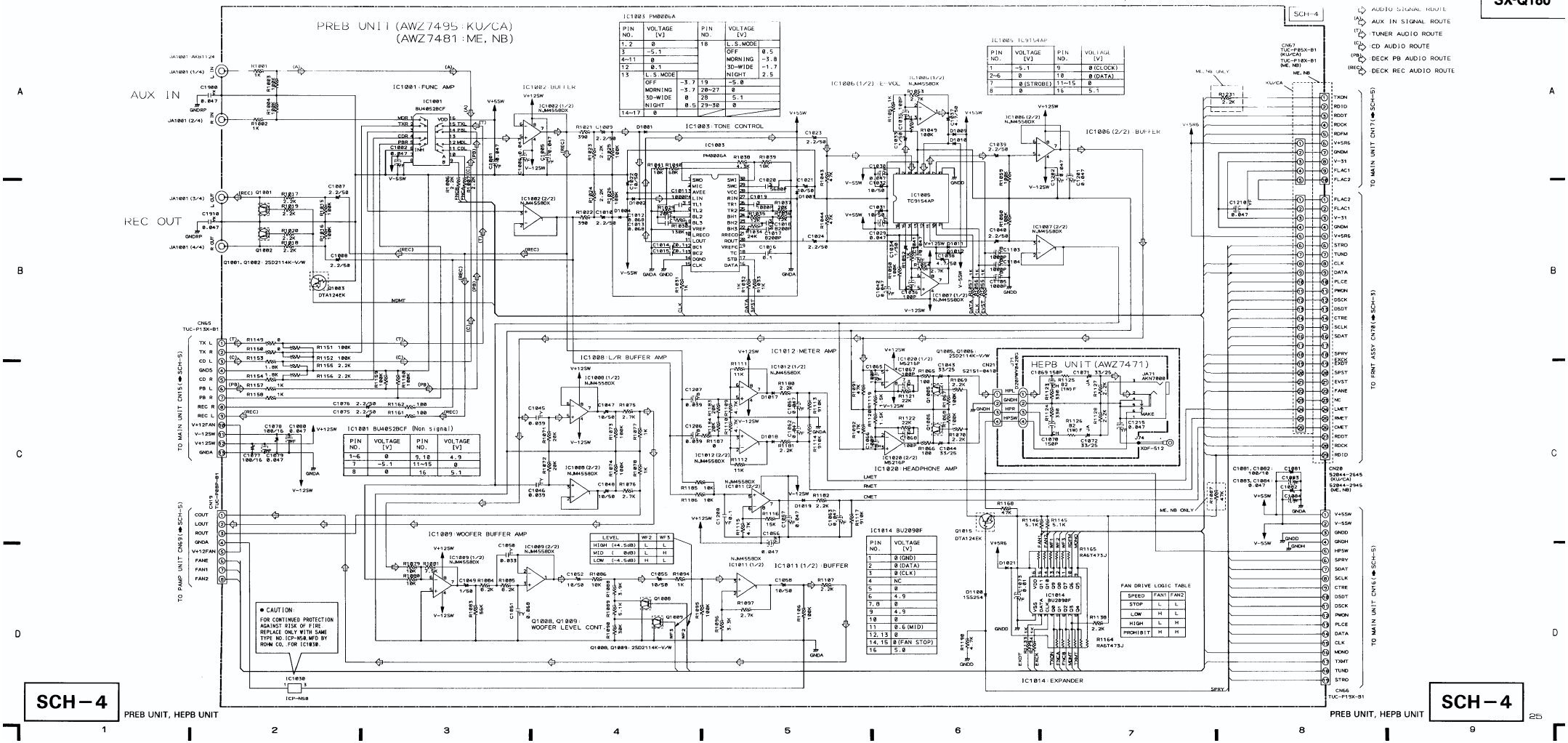
● This diagram is viewed from the foil side.

4.4 PREP UNIT AND HEAD UNIT

4.4 PREB UNIT AND HEPB UNIT

• This diagram is viewed from the mounted parts side.





PIN NO.	VOLTAGE [V]	PIN NO.	VOLTAGE [V]
1, 2	0	18	L.S.MODE
3	-5.1		OFF 0.5
4-11	0		MORNING -3.8
12	0.1		3D-WIDE -1.7
13	L.S.MODE		NIGHT 2.5
	OFF -3.7	19	-5.0
	MORNING -3.7	20-27	0
	3D-WIDE 0	28	5.1
	NIGHT 0.5	29-30	0
14-17	0		

IC1005 PM0006A

PIN NO.	VOLTAGE [V]	PIN NO.	VOLTAGE [V]
1	-5.1	9	0 (CLOCK)
2-6	0	10	0 (DATA)
7	0 (STROBE)	11-15	0
8	0	16	5.1

IC1005 TC9154AP

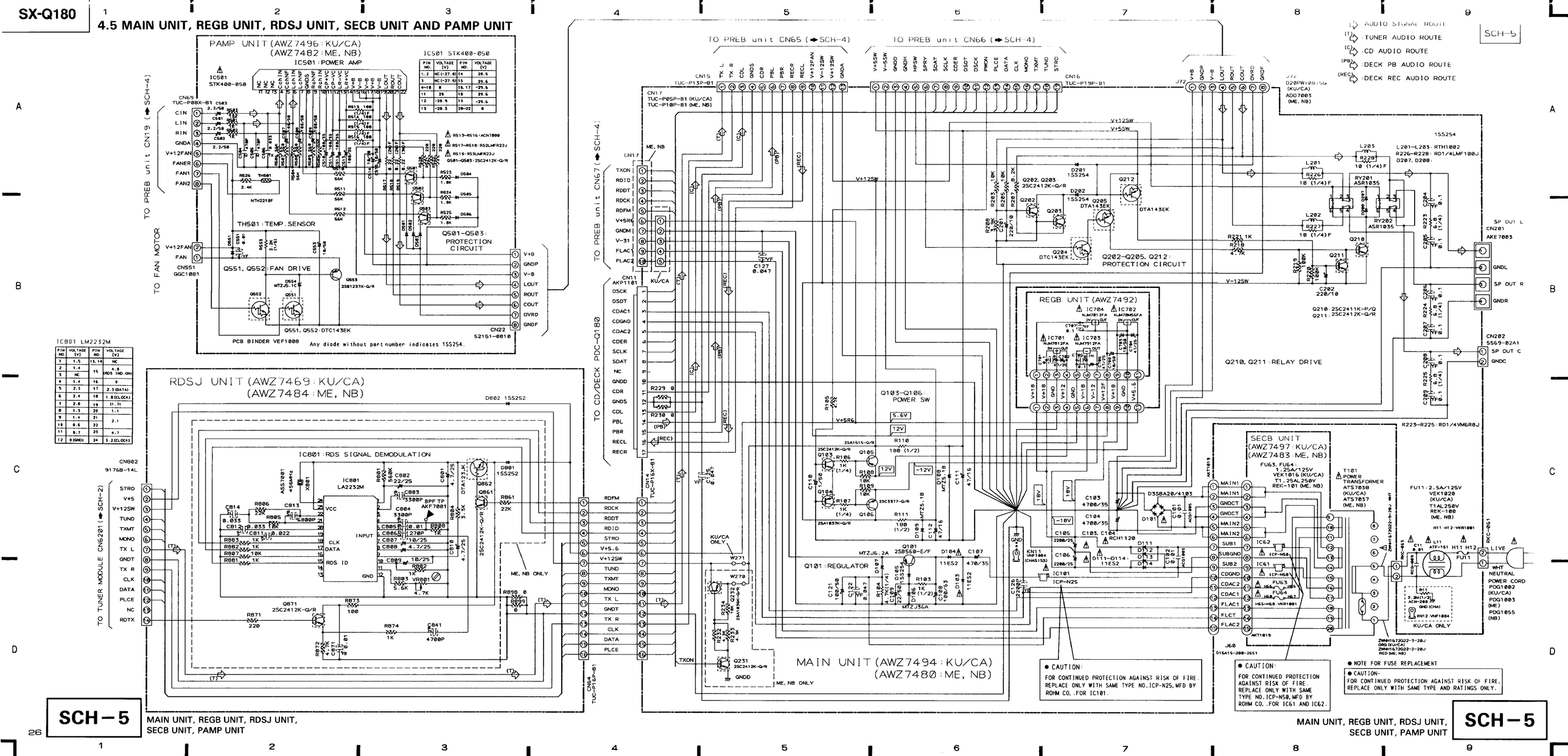
PIN NO.	VOLTAGE [V]	PIN NO.	VOLTAGE [V]
1-6	0	9, 10	4.9
7	-5.1	11-15	0
8	0	16	5.1

IC1001 BU4052BCF (Non signal)

PIN NO.	VOLTAGE [V]
1	0 (GND)
2	0 (DATA)
3	0 (CLK)
4	NC
5	0
6	4.9
7, 8	0
9	4.9
10	0
11	0.6 (MID)
12, 13	0
14, 15	0 (FAN STOP)
16	5.0

IC1014 BU2090F

4.5 MAIN UNIT, REGB UNIT, RDSJ UNIT, SECB UNIT AND PAMP UNIT



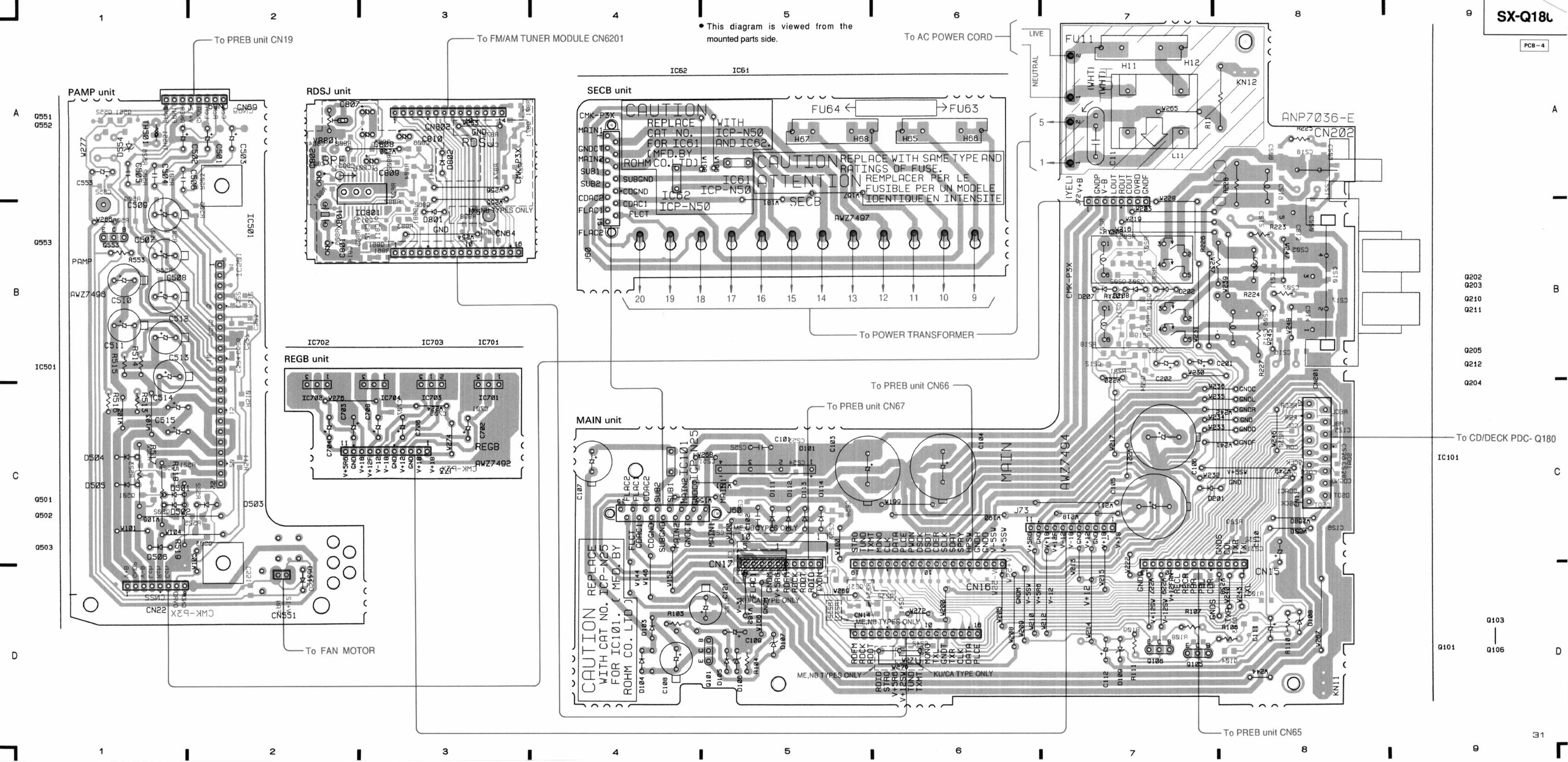
IC801 LM2232M

PIN NO.	VOLTAGE (V)	PIN NO.	VOLTAGE (V)
1	1.5	13, 14	NC
2	1.4	15	4.8 (RDS IND. ON)
3	NC		
4	1.4	16	0
5	2.3	17	2.3 (DATA)
6	2.4	18	1.8 (ECLOCK)
7	2.8	19	(1.7)
8	1.3	20	1.1
9	1.4	21	2.1
10	0.6	22	
11	0.7	23	4.7
12	0 (GND)	24	3.2 (ECLOCK)

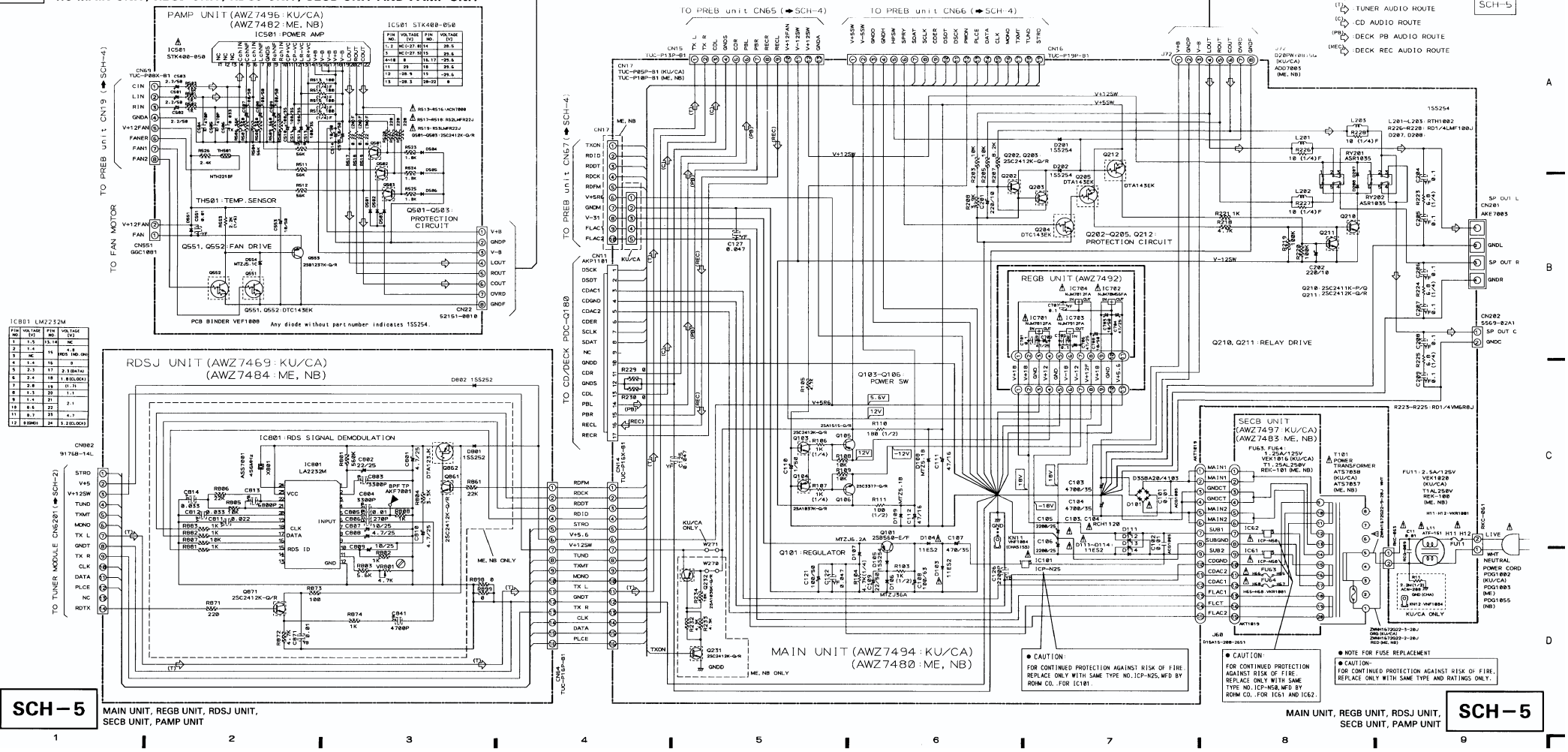
IC501 STK400-050

PIN NO.	VOLTAGE (V)	PIN NO.	VOLTAGE (V)
1, 2	NC (-27.8)	14	28.5
3	NC (-27.5)	15	29.6
4~10	0	16, 17	-29.6
11	29	18	29.6
12	-28.9	19	-29.6
13	-28.3	20~22	0

MAIN UNIT, REGB UNIT, RDSJ UNIT, SECB UNIT, PAMP UNIT
SCH-5


• This diagram is viewed from the mounted parts side.
To PREB unit CN19
To FM/AM TUNER MODULE CN6201
To AC POWER CORD
PAMP unit
RDSJ unit
SECB unit
REGB unit
MAIN unit
ANP7036-E
AWZ7496
AWZ7497
AWZ7492
AWZ7494
CMK-P3X
CMK-P2X
CAUTION REPLACE WITH CAT NO. ICP-N50 AND IC62. FOR IC61 (MFD.BY ROHM CO. LTD.)
CAUTION REPLACE WITH SAME TYPE AND RATINGS OF FUSE.
ATTENTION REMPLACER PER LE FUSIBLE PER UN MODELE IDENTIQUE EN INTENSITE
CAUTION REPLACE WITH CAT NO. ICP-N25 FOR IC101. (MFD.BY ROHM CO. LTD.)
To POWER TRANSFORMER
To PREB unit CN66
To PREB unit CN67
To CD/DECK PDC- Q180
To FAN MOTOR
To PREB unit CN65
ME,NB TYPES ONLY
KU/CA TYPE ONLY
LIVE
NEUTRAL
(WHT)
(YEL)

4.5 MAIN UNIT, REGB UNIT, RDSJ UNIT, SECB UNIT AND PAMP UNIT


PAMP UNIT (AWZ7496 : KU/CA)
(AWZ7482 : ME, NB)
IC501 : POWER AMP
IC501 STK400-050
TH501 : TEMP. SENSOR
Q501-Q503 : PROTECTION CIRCUIT
Q551, Q552 : FAN DRIVE
Q551, Q552 : DTC143EK
PCB BINDER VEF1808
Any diode without part number indicates 1SS254.
TO PREB unit CN19 (➡SCH-4)
TO FAN MOTOR
TO PREB unit CN65 (➡SCH-4)
TO PREB unit CN66 (➡SCH-4)
TO PREB unit CN67 (➡SCH-4)
TO CD/DECK PDC-Q180
TO TUNER MODULE CN6201 (➡SCH-2)
RDSJ UNIT (AWZ7469 : KU/CA)
(AWZ7484 : ME, NB)
IC801 : RDS SIGNAL DEMODULATION
IC801 LA2252M
REGB UNIT (AWZ7492)
Q103-Q106 POWER SW
Q202-Q205, Q212 : PROTECTION CIRCUIT
Q210, Q211 : RELAY DRIVE
Q210 : 2SC2411K-P/Q
Q211 : 2SC2412K-Q/R
Q101 : REGULATOR
SECB UNIT
(AWZ7497 : KU/CA)
(AWZ7483 : ME, NB)
MAIN UNIT (AWZ7494 : KU/CA)
(AWZ7480 : ME, NB)
IC801 LM2232M
CN802 91768-14L
CN17 TUC-P08X-B1 (KU/CA)
TUC-P10P-B1 (ME, NB)
CN15 TUC-P13P-B1
CN16 TUC-P19P-B1
CN11 AKP1101
CN14 TUC-P16X-B1
CN13 TUC-P16P-B1
CN22 52151-0810
CN551 GGC1001
CN201 AKE7005
CN202 5569-02A1
J72 D28PW(48)-156 (KU/CA) ADD7005 (ME, NB)
J60 D15A15-208-2651
● CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE NO. ICP-N25, MFD BY ROHM CO. : FOR IC101.
● CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. ICP-N5B, MFD BY ROHM CO. : FOR IC61 AND IC62.
● NOTE FOR FUSE REPLACEMENT
● CAUTION- FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATINGS ONLY.
(T) AUDIO SIGNAL ROUTE
(T) TUNER AUDIO ROUTE
(C) CD AUDIO ROUTE
(PB) DECK PB AUDIO ROUTE
(REC) DECK REC AUDIO ROUTE
SCH-5

5. PCB PARTS LIST

NOTES :

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω → 56 × 10¹ → 561 ····· RD1/8PM 5 6 1 J
47kΩ → 47 × 10³ → 473 ····· RD1/4PS 4 7 3 J
0.5Ω → 0R5 ····· RN2H 0 R 5 K
1Ω → 010 ····· RS1P 0 1 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ → 562 × 10¹ → 5621 ····· RM1/4PC 5 6 2 1 F

■ LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol & Description	Part No.			Remarks
		KU/CA TYPE	ME TYPE	NB TYPE	
NSP	MOTH assy	AWM7142	AWM7139	AWM7139	
	├ MAIN unit	AWZ7494	AWZ7480	AWZ7480	
	├ PREB unit	AWZ7495	AWZ7481	AWZ7481	
	├ PAMP unit	AWZ7496	AWZ7482	AWZ7482	*1
	├ SECB unit	AWZ7497	AWZ7483	AWZ7483	*2
NSP	├ RDSJ unit	AWZ7469	AWZ7484	AWZ7484	
	├ REGB unit	AWZ7492	AWZ7492	AWZ7492	
	└ HEPB unit	AWZ7471	AWZ7471	AWZ7471	
NSP	FRNT assy	AWX7011	AWX7010	AWX7010	
	FM/AM TUNER MODULE	AXQ1012	Not used	Not used	
	TUNER MODULE (RDS)	Not used	AXQ7013	AXQ7013	

Notes)
**1: Although AWZ7496 and AWZ7482 are different in part number, they consist of the same component.*
**2: Although AWZ7497 and AWZ7483 are different in part number, they consist of the same component.*

■ CONTRAST OF PCB ASSEMBLIES

MAIN UNIT

AWZ7494 and AWZ7480 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ7494	AWZ7480	
	Q231	Not used	2SC2412K	
	Q232	Not used	2SA1036K	
	R11 (2.2M, 1/2W)	ACN−208	Not used	
	R232, R233	Not used	RS1/10S432J	
	R234	Not used	RS1/10S103J	
	CN17 Connector (5P)	TUC−P05P−B1	Not used	
	CN17 Connector (10P)	Not used	TUC−P10P−B1	
	KN12 Earth metal fitting	VNF1084	Not used	

PREB UNIT

AWZ7495 and AWZ7481 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ7495	AWZ7481	
	R1087	Not used	RS1/10S473J	
	R1231	Not used	RS1/10S222J	
	CN20 Connector (26P)	52044−2645	Not used	
	CN20 Connector (29P)	Not used	52044−2945	
	CN67 Connector (5P)	TUC−P05X−B1	Not used	
	CN67 Connector (10P)	Not used	TUC−P10X−B1	

RDSJ UNIT

AWZ7469 and AWZ7484 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ7469	AWZ7484	
	IC801	Not used	LA2232M	
	Q861, Q871	Not used	2SC2412K	
	Q862	Not used	DTA123JK	
	D801	Not used	1SS252	
	C801, C808, C810	Not used	CEJA4R7M25	
	C802	Not used	CEJA220M25	
	C803, C804	Not used	CKSQYB332K50	
	C805, C871	Not used	CKSQYB103K50	
	C806	Not used	CCSQCH271J50	
	C807, C809	Not used	CEJA100M25	
	C811	Not used	CKSQYF223Z50	
	C812, C814	Not used	CKSQYF333Z50	
	C813	Not used	CKSQYB682K50	
	C841	Not used	CKSQYB472K50	
	VR801 (4.7k)	Not used	RCP1020	
	R801	Not used	RS1/10S564J	
	R802, R808, R874, R881−R883	Not used	RS1/10S102J	
	R803	Not used	RS1/10S562J	
	R804	Not used	RS1/10S332J	
	R805, R807	Not used	RS1/10S103J	
	R806, R861	Not used	RS1/10S223J	
	R871	Not used	RS1/10S221J	
	R872	Not used	RS1/10S472J	
	R873	Not used	RS1/10S101J	
	X801 (456MHz)	Not used	ASS7001	

FRNT ASSY

AWX7011 and AWX7010 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWX7011	AWX7010	
	IC402	LC75710E	LC75712E	
	IC401	PDG128B	PDG147A	
	D422	1SS254	Not used	
	CN70 Connector (26P)	52044−2645	Not used	
	CN70 Connector (29P)	Not used	52044−2945	

FM/AM TUNER MODULE

FM/AM TUNER MODULE (AXQ1012) and TUNER MODULE (RDS) (AXQ7013) have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AXQ1012	AXQ7013	
	C6202 (1μF/16V)	ACG1051	Not used	
	C6230	CKSQYB333K50	CKSQYB273K50	
	C6232	CKSYB333K50	CKSYB273K50	
	C6251	CKSYB472K50	CKSYB822K50	
	C6252	CKSQYB472K50	CKSQYB822K50	
	C6268	CCSQCH101J50	Not used	
	C6269	Not used	CCSQCH101J50	
	C6270 (1μF/16V)	Not used	ACG1051	
	R6274, R6277	Not used	RS1/10S000J	
	R6288	RS1/10S471J	RS1/10S000J	
	BN6201 Terminal 4P	AKA1016	Not used	
	BN6201 Terminal 2P with PAL	Not used	AKA1017	

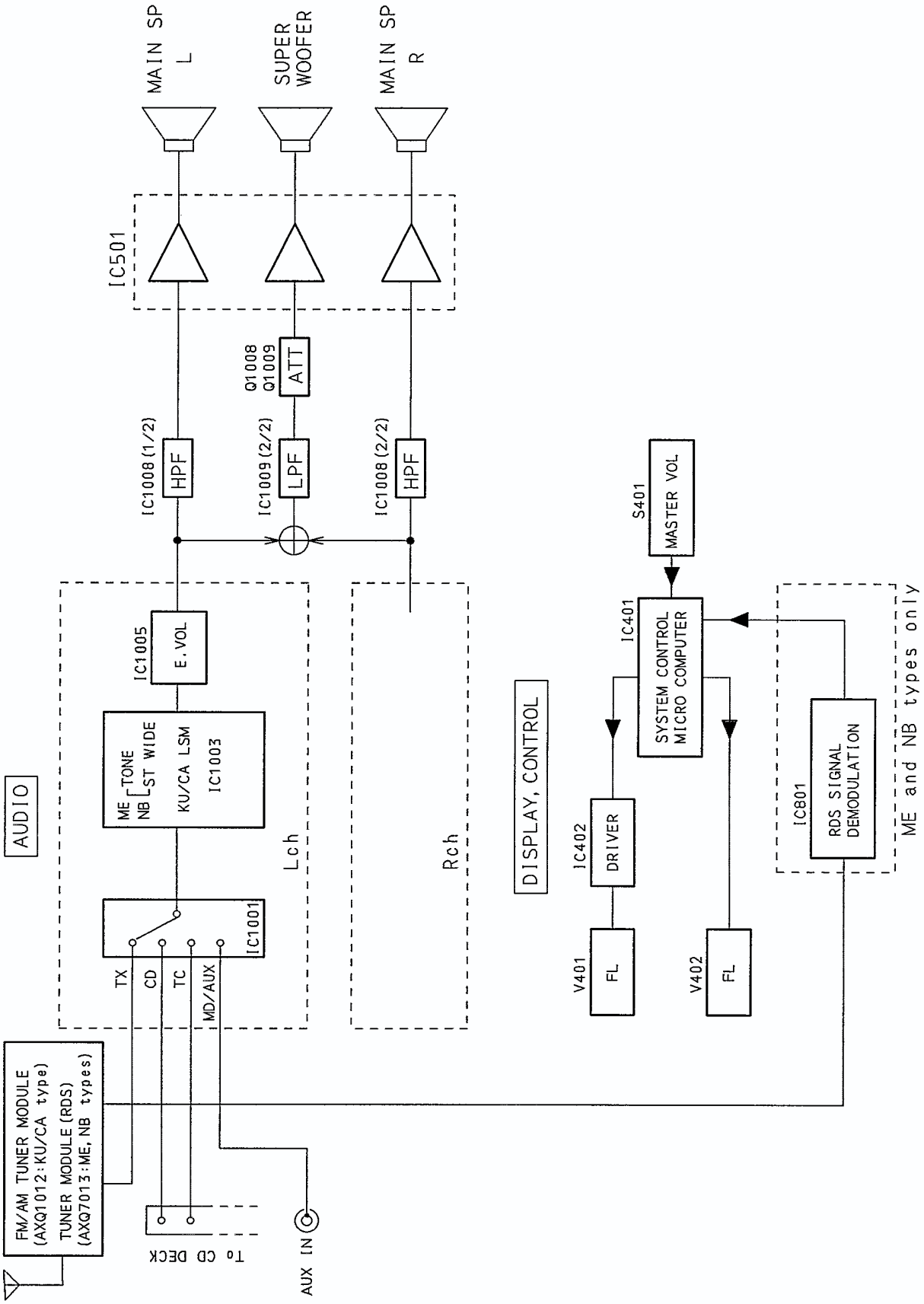
■ PARTS LIST FOR KU/CA TYPE

Mark	No.	Description	Parts No.
MAIN UNIT			
SEMICONDUCTORS			
⚠	IC101		ICP−N25
	Q104		2SA1037K
	Q105		2SA1515
	Q101		2SB560
	Q210		2SC2411K
	Q103, Q202, Q203, Q211		2SC2412K
	Q106		2SC3377
	Q205, Q212		DTA143EK
	Q204		DTC143EK
⚠	D103, D104, D111−D114		11ES2
	D105, D201, D202, D207, D208		1SS254
⚠	D101		D3SBA20/4103
	D108, D109		MTZ5.1B
	D106		MTZJ36A
	D107		MTZJ6.2A
	C204−C209		CKSQYF104Z50
	C122, C125, C127		CKSQYF473Z50
⚠	C11 (10000PF)		RCG−009
⚠	C103, C104 (4700/35V)		RCH1120
RESISTORS			
	R11 (2.2M, 1/2W)		ACN−208
	R103		RD1/2VM102J
	R110, R111		RD1/2VM181J
	R226−R228		RD1/4LMF100J
	R106, R107		RD1/4VM102J
	R104		RD1/4VM472J
	R223−R225		RD1/4VM6R8J
	Other Resistors		RS1/10S□□□J
OTHERS			
	CN202 CONNECTOR (2P)		5569−02A1
	SPEAKER TERMINAL 4−P		AKE7003
	CN11 SOCKET (17P)		AKP1101
	TERMINAL		RKC−061
	CN17 CONNECTOR (5P)		TUC−P05P−B1
	CN15 CONNECTOR (13P)		TUC−P13P−B1
	CN14 CONNECTOR (16P)		TUC−P16P−B1
	CN16 CONNECTOR (19P)		TUC−P19P−B1
	H11, H12 FUSE HOLDER		VKR1001
	KN11, KN12 EARTH METAL FITTING		VNF1084
PREB UNIT			
SEMICONDUCTORS			
	IC1014		BU2090F
	IC1001		BU4052BCF
⚠	IC1030		ICP−N50
	IC1020		M5216P
	IC1002, IC1006−IC1009, IC1011, IC1012		NJM4558DX
	IC1003		PM0006A
	IC1005		TC9154AP
	Q1001, Q1002, Q1005, Q1006		2SD2114K
	Q1008, Q1009		2SD2114K
	Q1003, Q1015		DTA124EK
	D1001−D1004, D1009−D1012		1SS254
	D1017−D1019, D1021, D1100		1SS254
CAPACITORS			
	C1035, C1036, C1065−C1068		CCSQCH101J50
	C1033, C1034, C1049		CEAS010M50
	C1021, C1022, C1031, C1032		CEAS100M50
	C1047, C1048, C1052, C1055, C1058		CEAS100M50
	C1081, C1082		CEAS101M10
	C1077, C1078		CEAS101M16
	C1007−C1010, C1023, C1024		CEAS2R2M50
	C1039, C1040, C1075, C1076		CEAS2R2M50
	C1043, C1044		CEAS330M25
	C1037, C1038		CEAS4R7M50
	C1014−C1016		CFTYA104J50
	C1050		CFTYA333J50
	C1045, C1046		CFTYA393J50
	C1012, C1013, C1051		CFTYA683J50
	C1900, C1910		CGCYX473M25
	C1103−C1105		CKSQYB102K50
	C1206, C1207		CKSQYB393K50
	C1073		CKSQYF103Z50
	C1208		CKSQYF104Z50
	C1001, C1002, C1005, C1006		CKSQYF473Z50
COILS AND FILTERS			
⚠	L11		ATF−151
	L201−L203 (1UH)		RTH1002
SWITCHES AND RELAYS			
	RY201, RY202		ASR1035
CAPACITORS			
	C101, C102 (0.01/150V)		ACG1005
	C110		CEAS010M50
	C121		CEAS101M50
	C108		CEAS101M63
	C109		CEAS220M50
	C201, C202		CEAS221M10
⚠	C105, C106		CEAS222M25
	C111, C112		CEAS470M16
	C107		CEAS471M35
	C126		CKSQYB222K50
	C1029, C1030, C1041, C1042		CKSQYF473Z50
	C1056, C1057, C1061−C1063		CKSQYF473Z50
	C1079, C1080, C1083, C1084		CKSQYF473Z50
	C1201, C1202, C1210		CKSQYF473Z50
	C1011, C1019		CQMA102J50
	C1020		CQMA562J50
	C1017, C1018		CQMA822J50
RESISTORS			
	R1164, R1165		RA6T473J
	Other Resistors		RS1/10S□□□J
OTHERS			
	CN20 CONNECTOR (26P)		52044−2645
	CN21 JUMPER CONNECTOR (3P)		52151−0410
	PIN JACK 4P (REC OUT, AUX IN)		AKB1124
	CN67 CONNECTOR (5P)		TUC−P05X−B1
	CN19 CONNECTOR (8P)		TUC−P08P−B1
	CN65 CONNECTOR (13P)		TUC−P13X−B1
	CN66 CONNECTOR (19P)		TUC−P19X−B1
PAMP UNIT			
SEMICONDUCTORS			
⚠	IC501		STK400−050
	Q553		2SB1237X
	Q501−Q503		2SC2412K
	Q551, Q552		DTC143EK
	D501−D506, D551		1SS254
	D554		MTZJ5.1C
CAPACITORS			
	C514, C515, C553		CEAS100M50
	C510−C513		CEAS101M35
	C507−C509		CEAS101M50
	C501−C503		CEAS2R2M50
	C506		CFTXA333J50
	C551		CKSQYF103Z50
	C504, C505		CQMA471J50
RESISTORS			
⚠	R513−R516 (100, 1/6W)		ACN7000
	R553		RD1/6PM222J
⚠	R517, R518		RS2LMFR22J
⚠	R519		RS3LMFR22J
	Other Resistors		RS1/10S□□□J
OTHERS			
	CN22 JUMPER CONNECTOR (6P)		52151−0810
	TH501 THERMISTOR		NTH2218F
	CN69 CONNECTOR (8P)		TUC−P08X−B1
	PCB BINDER		VEF1008
	CN551 UP CONNECTOR		GGC1081
SECB UNIT			
SEMICONDUCTORS			
⚠	IC61, IC62		ICP−N50
OTHERS			
	H65−H68 FUSE HOLDER		VKR1001

Mark	No.	Description	Parts No.
RDSJ UNIT			
SEMICONDUCTORS			
	D802		1SS252
RESISTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
	CN802	CONNECTOR (14P)	9176B−14L
	CN64	CONNECTOR (16P)	TUC−P16X−B1
REGB UNIT			
SEMICONDUCTORS			
⚠	IC701, IC704		NJM7812FA
⚠	IC702		NJM78M56FA
⚠	IC703		NJM7912FA
CAPACITORS			
	C703		CEAS100M50
	C702, C704, C706, C708		CEAS470M25
	C701, C705, C707		CKSQYF104Z50
HEPB UNIT			
CAPACITORS			
	C1069, C1070		CCSQCH151J50
	C1071, C1072		CEJA330M25
	C1215		CKSQYF473Z50
RESISTORS			
	R1125, R1126		RS1LMF820J
	Other Resistors		RS1/10S□□□J
OTHERS			
	JA71	MINITURE JACK	AKN7000
FRNT ASSY			
SEMICONDUCTORS			
	IC402		LC75710E
	IC401		PDG128B
	Q408		2SC2412K
	Q401−Q407		DTC143EK
	Q409, Q410		IMH11
	D401, D408, D412		1SS252
	D413, D414, D416−D420, D422		1SS254
	D409		MTZJ5.1B/C
	D402−D407		SEL6210S−TS
COILS AND FILTERS			
	L401		LAU220J
	L402		LAU2R2J
SWITCHES AND RELAYS			
	S403, S404, S406−S410		ASG7005
	S401		ASX1021
	S402, S405		PSG−065
CAPACITORS			
	C406 (0.047μF/25V)		ACH1246
	C405		CCSQCH300J50
	C412, C413		CEAL010M50
	C410		CEAL100M50
	C409		CEAL330M25
	C401		CEAS470M25
	C403, C414		CKSQYB102K50
	C402, C407, C408, C415		CKSQYF103Z50
	C418, C419		CKSQYF103Z50
	C416, C417, C420, C421		CKSQYF473Z50
RESISTORS			
	R998, R999 (47K)		RCX1003
	Other Resistors		RS1/10S□□□J
OTHERS			
	CN70	CONNECTOR (26P)	52044−2645
	X401		EFOEC1005T4
		REMOTE RECEIVER UNIT	GP1U58X
	V402	FL TUBE	RAW1136
	V401	FL TUBE	RAW1137
FM/AM TUNER MODULE			
SEMICONDUCTORS			
	IC6201		LA1836M
	IC6202		LM7001J
	Q6102		2SC2223
	Q6203		2SC2235
	Q6202		2SC2712
	Q6103, Q6214		2SC2714
	Q6201		2SK208
	Q6104		2SK302
	Q6101		3SK194
	Q6204		XDA124EK
	Q6217		XDC124EK
	D6101, D6102		1T33
COILS AND FILTERS			
	L6104		ATC1003
	L6101		ATC1020
	L6102		ATC1021
	T6101		ATE−063
	L6207		ATE1013
	F6203, F6204		ATF−119
	F6101		ATF−155
	F6202 (450KHZ)		ATF1155
	L6103		ATH1043
	L6202, L6203, L6208		LCTA2R2J3225
CAPACITORS			
	C6202, C6234, C6236 (1μF/16V)		ACG1051
	C6107		CCSCH010C50
	C6229		CCSCH821J50
	C6110		CCSQCH020C50
	C6101		CCSQCH050C50
	C6108, C6203, C6268		CCSQCH101J50
	C6111, C6116, C6208, C6221, C6222		CCSQCH150J50
	C6115		CCSQCH330J50
	C6114		CCSQRH080D50
	C6113		CCSQRH180J50
	C6105		CCSQTH150J50
	C6261		CEAS010M50
	C6224, C6246, C6262		CEAS100M50
	C6216, C6217		CEAS330M16
	C6231, C6233		CEAS3R3M50
	C6219		CEAS470M10
	C6243−C6245		CEAS470M16
	C6227		CEAS470M25
	C6238		CEJA100M16
	C6249, C6250		CEJA4R7M35

Mark	No.	Description	Parts No.
	C6215		CFTXA103J50
	C6214		CFTXA224J50
	C6103, C6106, C6112, C6204		CKSQYB102K50
	C6102, C6109, C6117, C6210, C6264		CKSQYB103K50
	C6213		CKSQYB223K50
	C6230		CKSQYB333K50
	C6228, C6252		CKSQYB472K50
	C6209, C6237, C6265, C6267		CKSQYB473K50
	C6212, C6218		CKSQYF103Z50
	C6220, C6226, C6239, C6242, C6255		CKSQYF223Z50
	C6235		CKSQYF224Z25
	C6225, C6241, C6266		CKSQYF473Z50
	C6232		CKSYB333K50
	C6251		CKSYB472K50
	C6223		CKSYF103Z50
	C6263		CKSYF473Z50
RESISTORS			
	VR6201 (10k)		ACP1056
	VR6202		VRTB6VS223
	R6299, R6300		RD1'8PM102J
	R6113, R6116, R6118, R6268–R6271		RS1/8S000J
	R6275, R6276, R6278, R6283, R6284		RS1/8S000J
	R6290, R6293, R6294, R6297		RS1/8S000J
	R6243, R6244		RS1/8S101J
	R6211		RS1/8S103J
	R6237		RS1/8S182J
	R6209		RS1/8S221J
	R6239		RS1/8S332J
	R6101		RS1/8S470J
	Other Resistors		RS1/10S□□□J
OTHERS			
	BN6201	TERMINAL 4–P	AKA1016
	X6203	CRYSTAL RESONATOR	ASS1042
	X6201	CRYSTAL RESONATOR	ASS1066
	X6202	CERAMIC RESONATOR	ATF1027
		AM RF TUNING BLOCK	AXX1041

6. BLOCK DIAGRAM



7. ADJUSTMENTS

7.1 TUNER SECTION

■ FM Tuner Section

- Set the mode selector to FM BAND.
- Connect the wiring as shown in Fig. 1.

Step No.	Adjustment Title	FM SG (1kHz, ±75kHz dev.)		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (MHz)	Level (dBμV)			
1	Center Adjustment	98 Non modulation	80 or more	—	L6207	Adjust so that the DC voltage between IC6201−Pin 4 and Pin 28 (or ⊕ leads of C6224 and C6261) becomes 0V±50mV.
2	Front End Sencitivity	98	10−30	98MHz	L6102 T6101	Adjust so that the DC voltage between the IC6201−Pin 12 and GND (or ⊕ leads of C6238 and GND) becomes at maximum level.
3	Stereo Distortion	98	80	98MHz	T6101	Minimize the distortion with 1/8 rotation of the core.
4	TUNED IND. Lighting Level	98	15±2	98MHz	VR6201	Adjust so that the indicator of TUNED IND. starts to light up.

Notes:

- *Before adjusting, make sure there is no gap between L6101 and L6102. If there is a gap between them, bring them into contact with each other first, and then make adjustments.*
- *Make indicator adjustments in order of AM → FM.*

■ AM Tuner Section

- Set the mode selector to AM BAND.
- Connect the wiring as shown in Fig. 1.

Step No.	Adjustment Title	AM SG (400Hz, 30% Mod.)		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (kHz)	Level (dBμV/m)			
1	TUNED IND. Lighting Level	999	47±2	999kHz	VR6202	Adjust so that the indicator of TUNED IND. starts to light up.

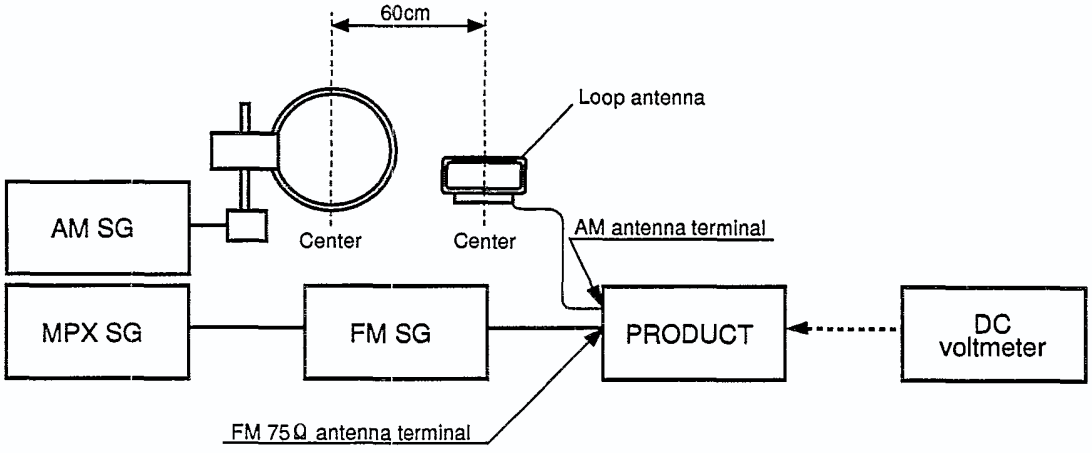


Fig. 1 AM and FM Adjustment Wiring Diagram

FM/AM TUNER MODULE

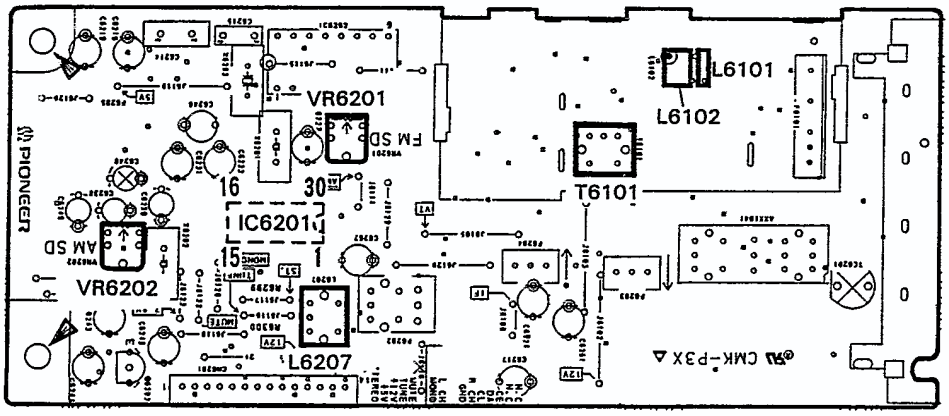


Fig. 2 Adjustment Points

7.2 RDS ADJUSTMENT (ME AND NB TYPES ONLY)

- Setting the RDS-Signal generator (*1).
- Set the mode selector to FM BAND.
- Connect the wiring as shown in Fig. 3

*Note *1 : Audio Main 1kHz, 85 %*
Pilot 10 % RDS 1.6 %
SK 4.7 %

Step No.	Adjustment Title	FM/AM SG		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (MHz)	Level (dBμV)			
1	RDS (BPF) Level	88	60	88MHz	VR801	Adjust so that the Waveform of TP point (BPF) becomes at maximum. (Photo 1)
2	RDS IND. Lighting Level Verification	88	60	88MHz	——	Confirm that the RDS IND. to light up.

Note: Entry into RDS mode is done by switching to the FM band and entering an RDS signal from FM (RDS) SG to the FM 75Ω antenna terminal.

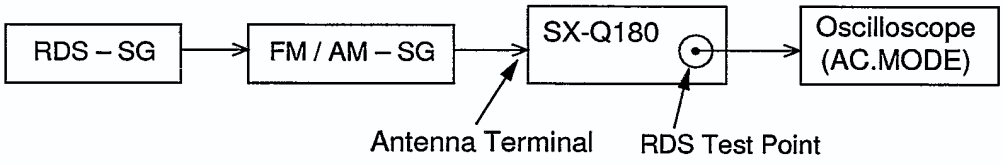


Fig. 3 RDS Adjustment Wiring Diagram

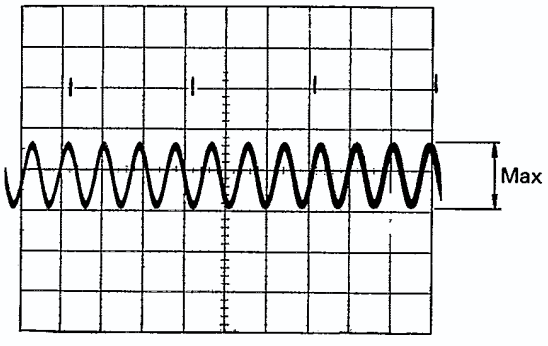


Photo 1

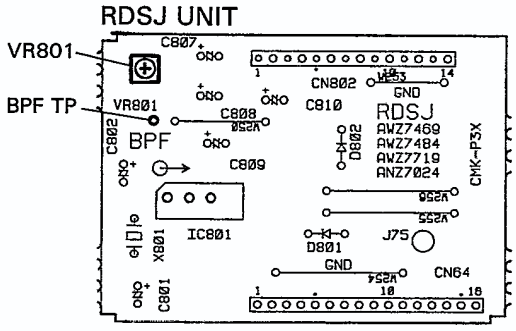
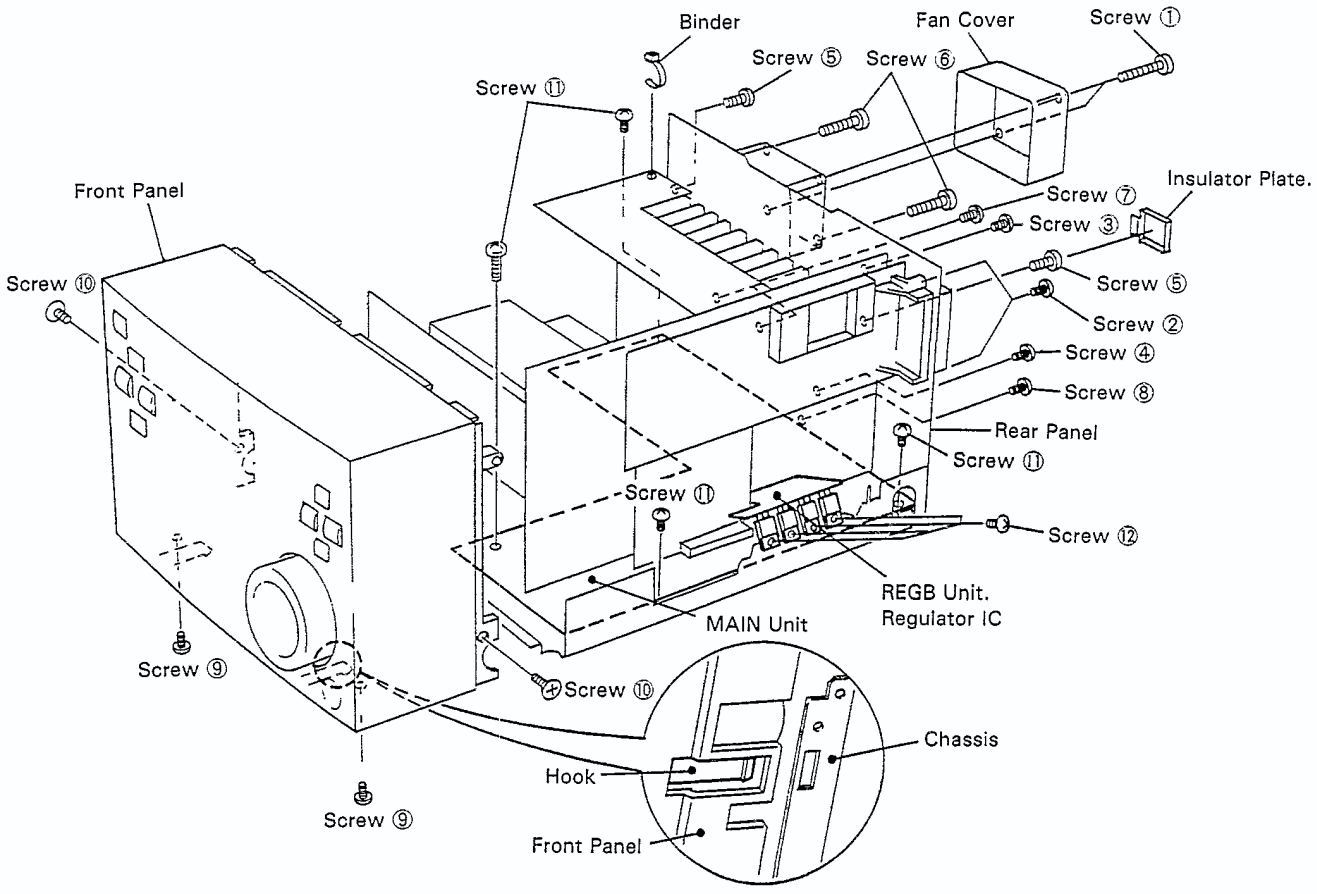


Fig. 4 Adjustment Points

8. DISASSEMBLY

■ HOW TO REMOVE MAIN UNIT

1. Remove the fan cover.
   1) Remove the screw ① (2 screws) of the fan cover.
2. Remove the bonnet case.
3. Remove the rear panel section.
   2) Remove the screw ② (2 screws) of the antenna terminal.
   3) Remove the screw ③ (1 screw) of the pin jack (REC OUT/AUX).
   4) Remove the screw ④ (1 screw) of the connector for CASSETTE DECK CD.
   5) Remove the insulator plate.
   6) Remove the screw ⑤ (2 screws) of the heat sink.
   7) Remove the screw ⑥ (2 screws) of the fan motor.
   8) Cut the binder holding the lead wire of the fan motor.
   9) Remove the screw ⑦ (2 screws) of the front speaker terminal.
   10) Remove the screw ⑧ (1 screw) between the chassis and rear panel.
4. Remove the front panel section
   11) Remove the screw ⑨ (2 screws) between the chassis and front panel bottom.
   12) Remove the screw ⑩ (1 screw each side) between the chassis and front panel left/right-side.
   13) Remove the front panel from the chassis. (Be careful of the hook on the bottom side).
5. Remove the screw ⑪ (4 screws) holding the MAIN unit.
6. Remove the screw ⑫ (4 screws) holding the regulator IC of the REGB unit.



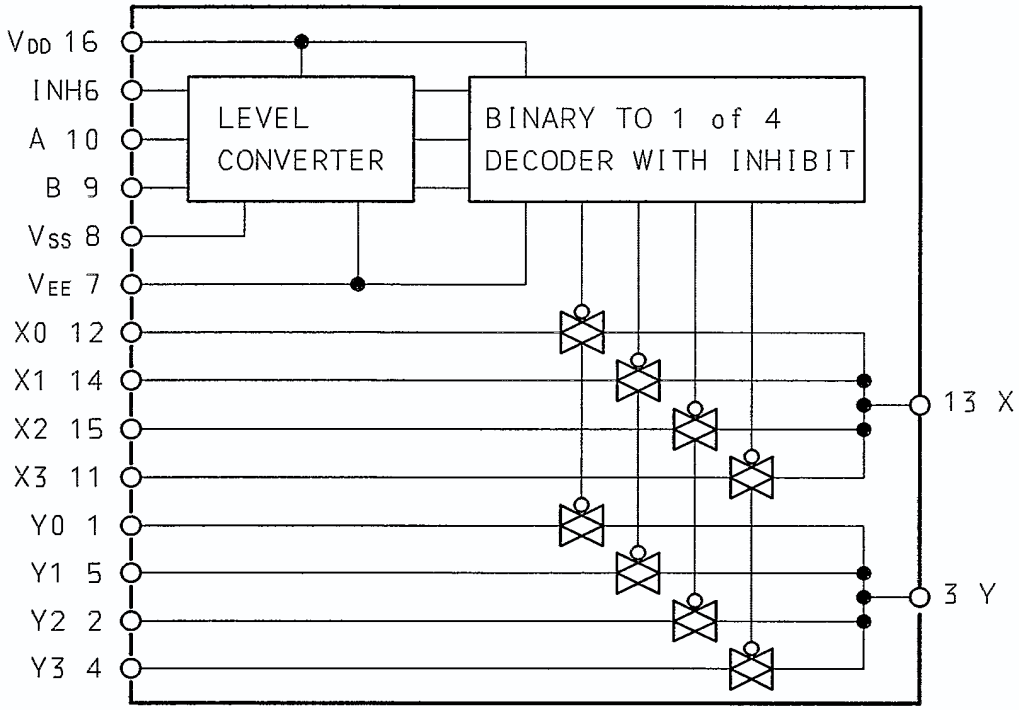
9. IC INFORMATION

- *The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.*

■ BU4052BCF (IC1001 : PREB UNIT)

● 2-Circuit, 4-Channel Analog Multiplexer/De-multiplexer

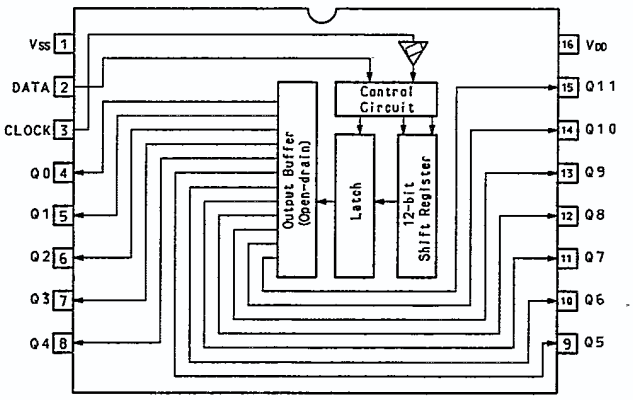
- Block Diagram



■ BU2090F (IC1014 : PREB UNIT)

● 12-bit Serial In/Parallel Out Converter

- Block Diagram



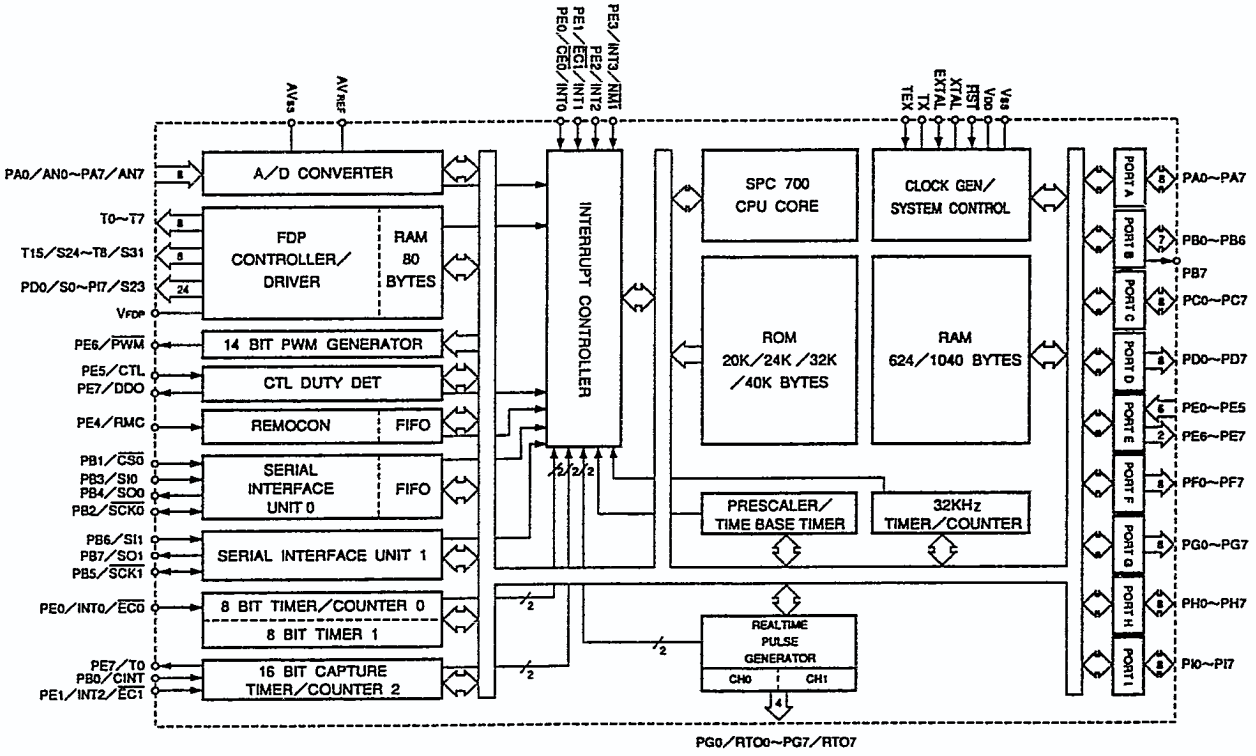
- Pin Function

No.	Pin Name	I/O	Function
1	Vss	–	GND
2	DATA	I	Serial data input
3	CLOCK	I	Data shift clock (rise edge trigger) When DATA is "H" at the time of CLOCK drop, latched output of the shift register contents is executed.
4 15	Q0 | Q11	O	Parallel data output (Nch Open Drain FET) Latch Data: L / H Output FET: ON / OFF
16	VDD	–	Power supply

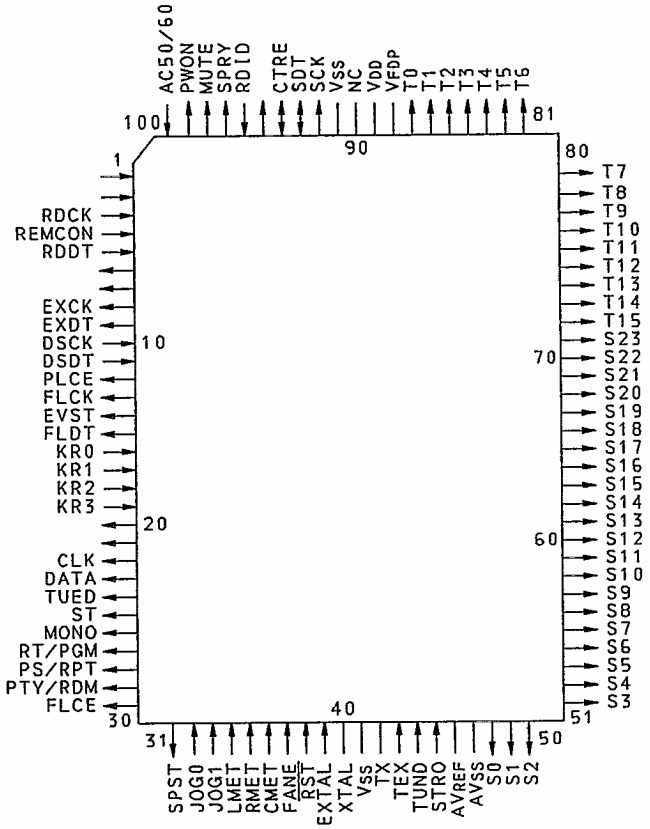
■ PDG128B [IC401 : FRNT ASSY (KU/CA TYPE)]
■ PDG147A [IC401 : FRNT ASSY (ME AND NB TYPES)]

● System Control Micro-computer

● Block Diagram



● Pin Assignment (Top View)



● Pin Function

No.	Pin Name	Pin Function	I/O	Function
1	INT1	–	I	Not used
2	INT2	–	I	Connected to DSCK (Pin 10)
3	INT3	RDCK	I	RDS CLOCK *
4	RMC	REMCON	I	Remocon input
5	PE5	RDDT	I	RDS DATA *
6	PE6	–	O	Not used (N.C)
7	PE7	–	O	Not used (N.C)
8	PB0	EXCK	I/O	BU2090 CLOCK
9	PB1	EXDT	I/O	BU2090 DATA
10	SCK0	DSCK	I/O	CD/DECK display data CLOCK
11	SI0	DSDT	I/O	CD/DECK display data DATA
12	PB3	PLCE	I/O	PLL CE
13	SCK1	FLCK	I/O	FL driver IC CLOCK

**: PDG147A (ME and NB types) only*

No.	Pin Name	Pin Function	I/O	Function
14	PB6	EVST	I/O	Electronic volume IC strobe
15	SO1	FLDT	O	FL driver IC DATA
16	PC0	KR0	I/O	Key scan key input 0
17	PC1	KR1	I/O	Key scan key input 1
18	PC2	KR2	I/O	Key scan key input 2
19	PC3	KR3	I/O	Key scan key input 3
20	PC4	–	I/O	Not used (N.C)
21	PC5	–	I/O	Not used (N.C)
22	PC6	CLK	I/O	PLL/Electronic volume/Sound processor CLOCK
23	PC7	DATA	I/O	PLL/Electronic volume/Sound processor DATA
24	PH0	TUED	I/O	TUNED LED H: ON, L: OFF
25	PH1	ST	I/O	STEREO LED H: ON, L: OFF
26	PH2	MONO	I/O	MONO LED H: ON, L: OFF
27	PH3	RT/PGM	I/O	PGM LED (KU/CA type) RT LED (ME and NB types) H: ON, L: OFF
28	PH4	PS/RPT	I/O	REPEAT LED (KU/CA type) PS LED (ME and NB types) H: ON, L: OFF
29	PH5	PTY/RDM	I/O	RDM LED (KU/CA type) PTY LED (ME and NB types) H: ON, L: OFF
30	PH6	FLCE	I/O	FL driver IC CE
31	PH7	SPST	I/O	Sound processor IC strobe
32	PA0	JOG0	I	Jog pulse input 0
33	PA1	JOG1	I	Jog pulse input 1
34	AN2	LMET	I	Lch level meter input
35	AN3	RMET	I	Rch level meter input
36	AN4	CMET	I	Center level meter input
37	AN5	FANE	I	Fan error voltage input
38	$\overline{RST}$	XRESET	I	Reset

No.	Pin Name	Pin Function	I/O	Function
39	EXTAL	–	I	Connected to Syatem clock (10MHz)
40	XTAL	–	O	Connected to Syatem clock (10MHz)
41	Vss	–	–	GND
42	TX	–	O	Not used (N.C)
43	TEX	–	I	Not used (N.C)
44	PA6	TUND	I	TUNED input H: NOT TUNED、L: TUNED
45	PA7	STRO	I	STEREO input H: NOT STEREO、L: STEREO
46	AVREF	VREF	–	A/D converter reference voltage input (+5V BU)
47	AVss	–	–	A/D converter GND (GND)
48	S0	S0	O	FL segment output 0
49	S1	S1	O	FL segment output 1
50	S2	S2	O	FL segment output 2
51	S3	S3	O	FL segment output 3
52	S4	S4	O	FL segment output 4
53	S5	S5	O	FL segment output 5
54	S6	S6	O	FL segment output 6
55	S7	S7	O	FL segment output 7
56	S8	S8	O	FL segment output 8
57	S9	S9	O	FL segment output 9
58	S10	S10	O	FL segment output 10
59	S11	S11	O	FL segment output 11
60	S12	S12	O	FL segment output 12
61	S13	S13	O	FL segment output 13
62	S14	S14	O	FL segment output 14
63	S15	S15	O	FL segment output 15
64	S16	S16	O	FL segment output 16
65	S17	S17	O	FL segment output 17

No.	Pin Name	Pin Function	I/O	Function	
66	S18	S18	O	FL segment output	18
67	S19	S19	O		19
68	S20	S20	O		20
69	S21	S21	O		21
70	S22	S22	O		22
71	S23	S23	O		23
72	T15	T15	O	FL grid output	15
73	T14	T14	O		14
74	T13	T13	O		13
75	T12	T12	O		12
76	T11	T11	O		11
77	T10	T10	O		10
78	T9	T9	O		9
79	T8	T8	O		8
80	T7	T7	O		7
81	T6	T6	O		6
82	T5	T5	O		5
83	T4	T4	O		4
84	T3	T3	O		3
85	T2	T2	O		2
86	T1	T1	O		1
87	T0	T0	O		0
88	VFDP	V−31	–	Supply voltage for FDP (−31V)	
89	VDD	–	–	Positive power supply (+5V BU)	
90	NC	–	–	Connected to VDD	
91	Vss	–	–	GND (GNDM)	

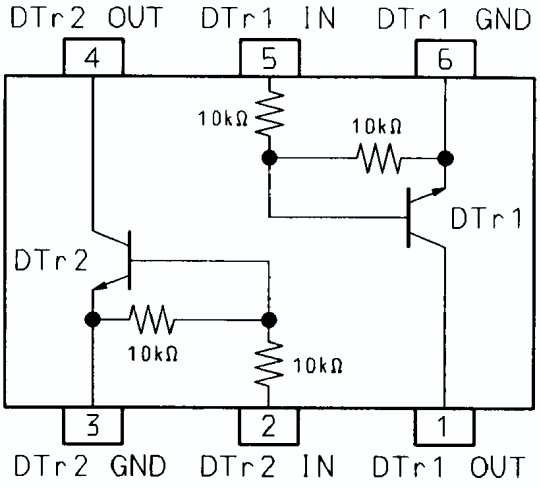
No.	Pin Name	Pin Function	I/O	Function
92	PG0	SCK	I/O	System bus CLOCK
93	PG1	SDT	I/O	System bus DATA
94	PG2	CTRE	I/O	System bus REQ/ENA
95	PG3	–	I/O	Not used (N.C)
96	PG4	RDID	I/O	RDS indicator input *
97	PG5	SPRY	I/O	Speaker relay H: ON、L: OFF
98	PG6	MUTE	I/O	PA mute H: ON、L: OFF
99	PG7	PWON	I/O	Switched type power ON H: ON、L: OFF
100	INT0	AC50/60	I	AC50/60 pulse input

**: PDG147A (ME and NB types) only*

■ IMH11 (Q409, Q410 : FRNT ASSY)

● Inverter, Interface, Driver

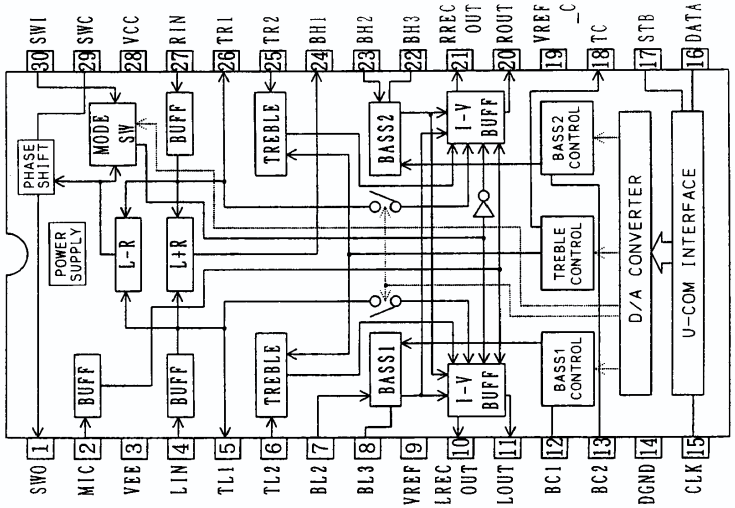
● Block Diagram



■ PM0006A (IC1003 : PREB UNIT)

● **Analog Sound Processor IC**

● Block Diagram



● Pin Function

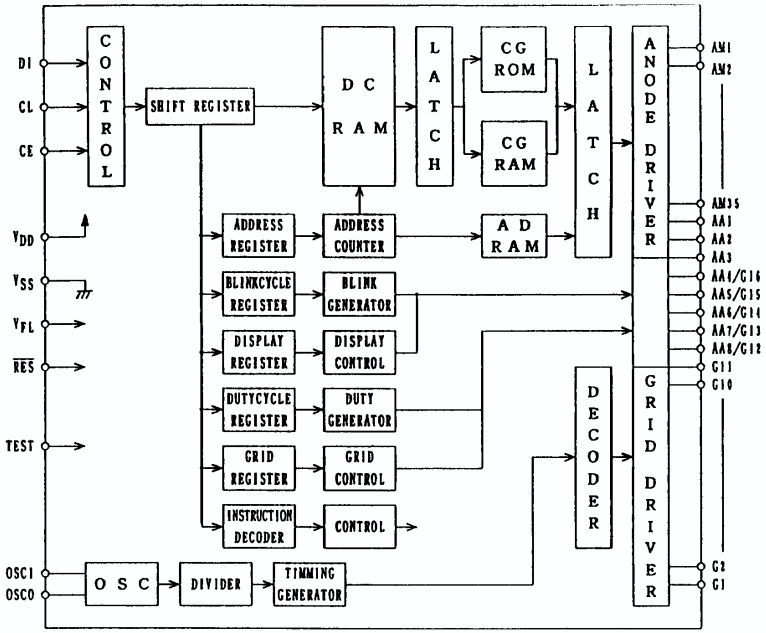
No.	Pin Name	Function
1	SWO	Surround adjustment output
2	MIC	Mic input
3	VEE	−5V power supply
4	LIN	Signal input (L ch)
5	TL1	Treble filter 1 (L ch)
6	TL2	Treble filter 2 (L ch)
7	BL2	bass 1 filter 2
8	BL3	Bass 1 filter 3
9	VREF	Reference Voltage (GND)
10	LRECOUT	REC OUT (L ch)
11	LOUT	Signal output (L ch)
12	BC1	Capacitor terminal for noise prevention at the time of bass 1 switching
13	BC2	Capacitor terminal for noise prevention at the time of bass 2 switching
14	DGND	Digital GND
15	CLK	Clock input

No.	Pin Name	Function
16	DATA	Data input
17	STB	Strobe input
18	TC	Capacitor terminal for noise prevention at the time of treble switching
19	VREF C	Non connect (N.C)
20	ROUT	Signal output (R ch)
21	RRECOUT	REC OUT (R ch)
22	BH3	Bass 2 filter 3
23	BH2	Bass 2 filter 2
24	BH1	Bass 2 filter 1
25	TR2	Treble filter 2 (R ch)
26	TR1	Treble filter 1 (R ch)
27	RIN	Signal input (L ch)
28	VCC	+5V power supply
29	SWC	Surround phase sift adjustment
30	SWI	Surround adjustment input

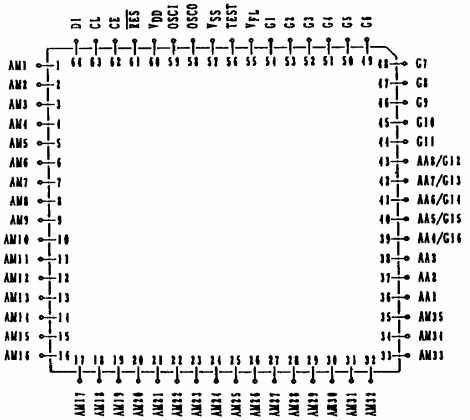
■ LC75712E [IC402 : FRNT ASSY (ME AND NB TYPES)]
■ LC75710E [IC402 : FRNT ASSY (KU/CA TYPE)]

● **Controller Driver for 5×7 dot Matrix VFD Display**

● Block Diagram



● Pin Assignment (Top View)



● Pin Function

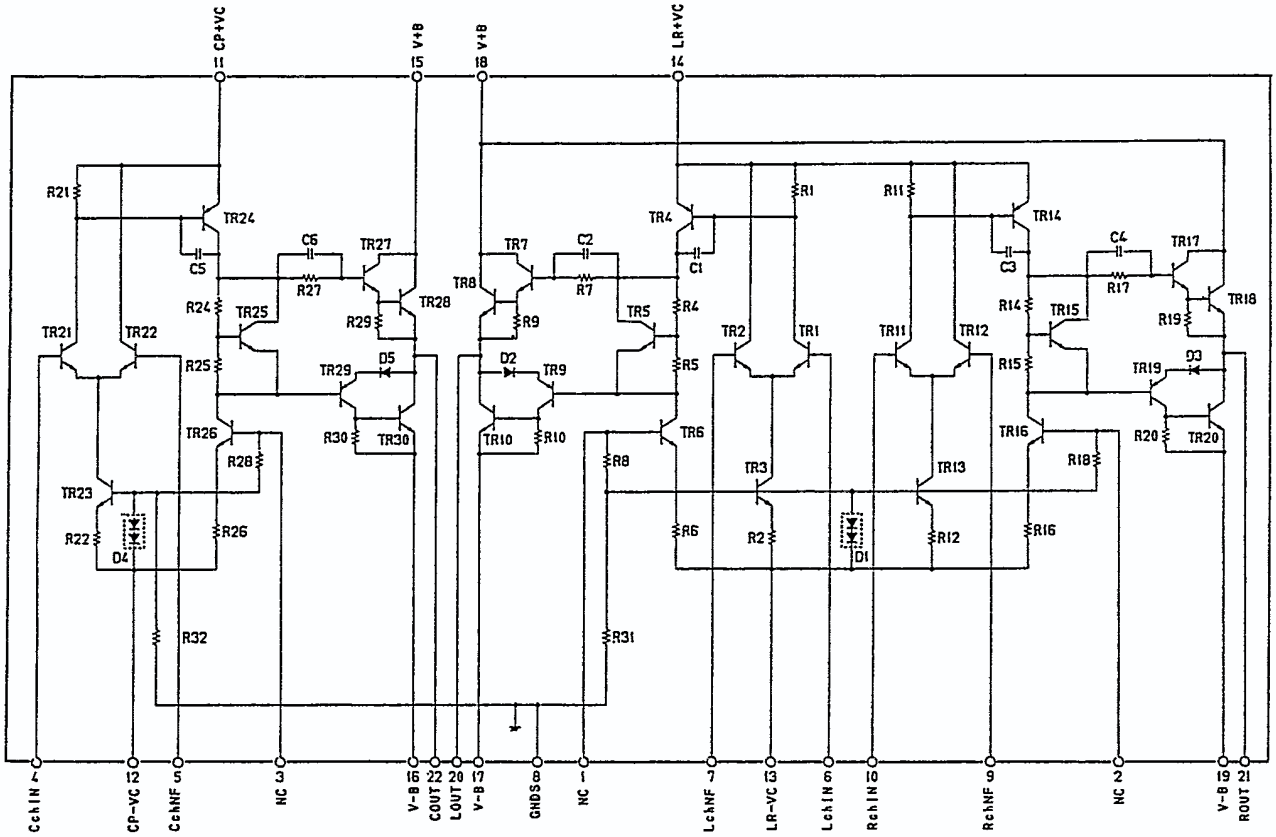
No.	Pin Name	Function
1	AM1	Anode output (built-in pull-down resistor)
|	|	
35	AM35	
36	AA1	
|	|	
38	AA3	
39	AA4/G16	Anode/Grid output When the display digit number is selected as 12 to 16 digits by a "display digit number specification" instruction, these terminals become grid output terminals (built-in pull-down resistor).
|	|	
43	AA8/G12	
44	G11	Grid output (built-in pull-down resistor)
|	|	
54	G1	
55	VFL	Driver section power supply
56	TEST	LSI test Connected to VSS

No.	Pin Name	Function
57	VSS	Logic section power supply (GND)
58	OSCO	Connection terminals for external Capacitor, Resistor for oscillator
59	OSCI	
60	VDD	Logic section power supply (+5V typ)
61	$\overline{RES}$	System reset input
62	CE	Serial data transmission (Chip enable)
63	CL	Serial data transmission (Synchronizing clock)
64	DI	Serial data transmission (Transmission data)

■ STK400−050 (IC501 : PAMP UNIT)

● 3-channel AF Power Amplifier

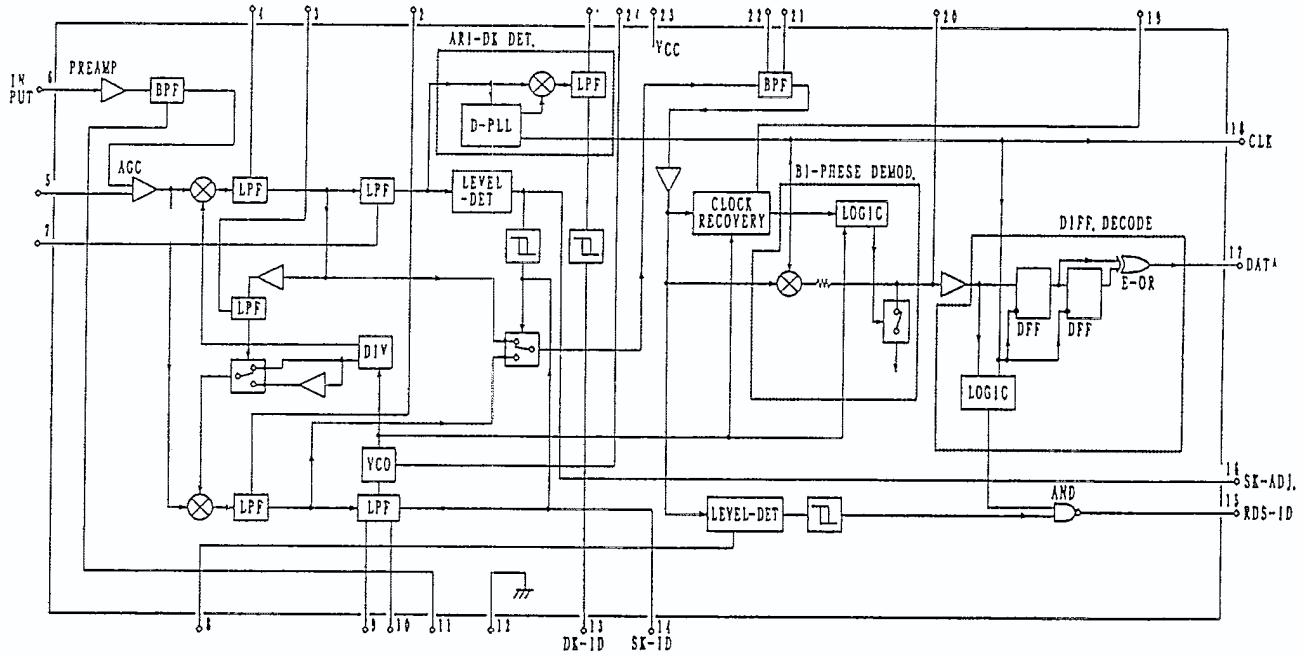
● Block Diagram



■ LA2232M [IC801 : RDSJ UNIT (ME AND NB TYPES ONLY)]

● RDS Signal Demodulator

● Block Diagram



● Pin Function

No.	Pin Name	I/O	Description
1	DK filter	–	Low pass filter for DK detection
2	Q–DET	–	Low pass filter for Quadrature detection
3	NC	–	OPEN, Low pass filter for remodulation comparison
4	I–DET	–	Low pass filter for Syncronous detection
5	BYPASS	–	Band pass filter check terminal
6	RDS input	I	RDS input terminal
7	SK filter	–	Low pass filter for SK detection
8	RDS filter	–	Low pass filter for RDS detection
9	PLL loop filter	–	Remodulation comparison method PLL loop filter
10			
11	Filter adjustment	–	Band pass filter (57kHz) adjustment terminal
12	GND	–	GND
13	ARI-DK display	O	ARI-DK display terminal

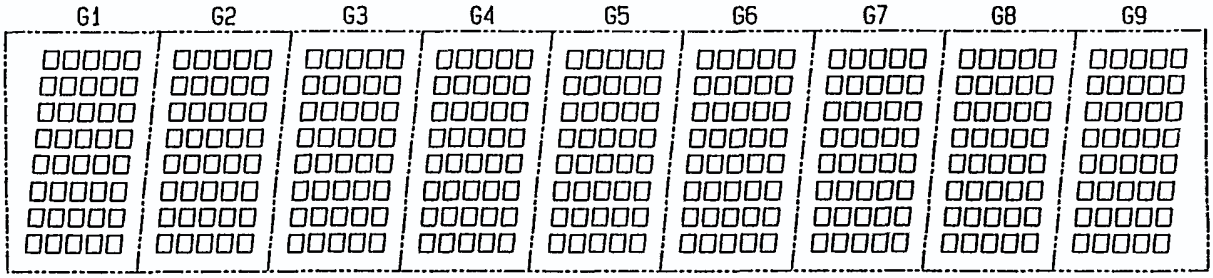
No.	Pin Name	I/O	Description
14	ARI-SK display	O	ARI-SK display terminal
15	RDS display	O	RDS display terminal
16	SK sensitivity adjustment	–	SK sensitivity adjustment terminal
17	DATA	O	DATA output terminal
18	CLK	O	Clock signal output terminal
19	D–PLL	–	Low pass filter for digital PLL for clock playback
20	INTEG/D	–	Capacitor for integration damp
21	B. E. F.	–	Band pass filter for RDS detection
22			
23	Vcc	–	Vcc +5V
24	VCO	–	456 kHz ocsillation circuit

10.FL INFORMATION

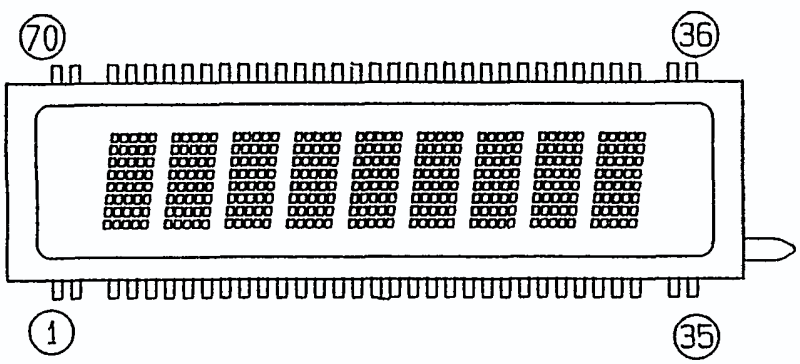
■ RAW1137 (V401 : FRNT ASSY)

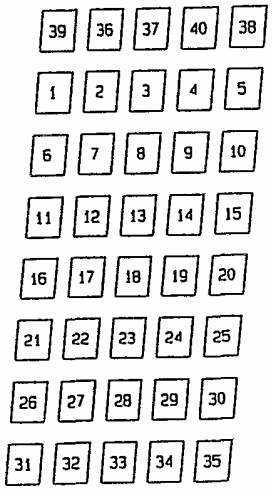
● FL TUBE

● Grid Assignment



● Pin Assignment





● Pin-Connection

PIN ASSIGNMENT

Pin No.	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53
Assignment	F	F	NP	1	38	40	37	36	39	2	3	4	5	6	7	8	NL	NL

Pin No.	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36
Assignment	NL	21	20	19	18	17	16	15	9	10	11	12	13	14	NP	F	F

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Assignment	F	F	NP	29	30	31	32	33	34	28	27	26	25	24	23	22	35	NL

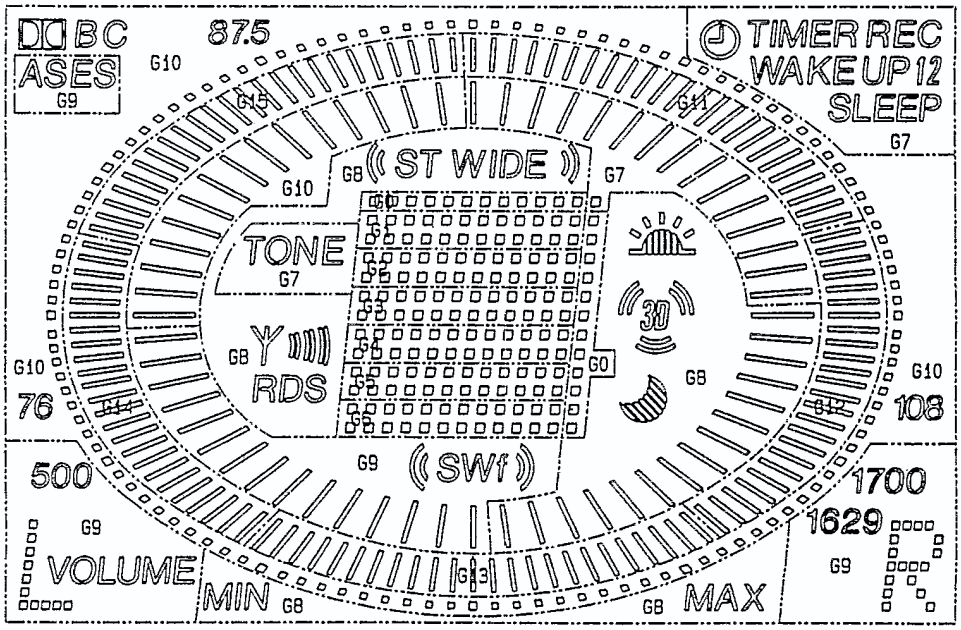
Pin No.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Assignment	G1	G2	G3	G4	G5	G6	G7	G8	G9	NL	NL	NL	NL	NL	NP	F	F

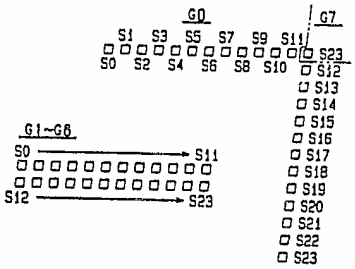
F : Filament G1~G9 : Grid 1~40 : Anode NP : No pin NL: No lead

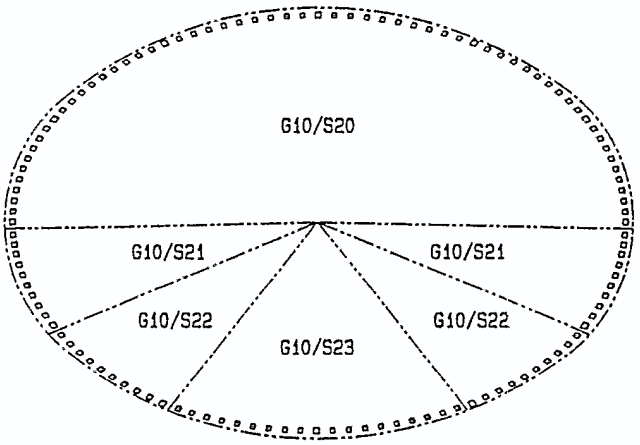
■ RAW1136 (V402 : FRNT ASSY)

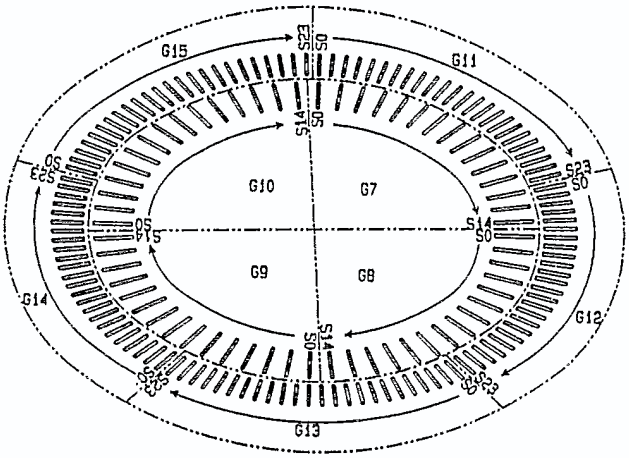
● FL TUBE

● Grid Assignment

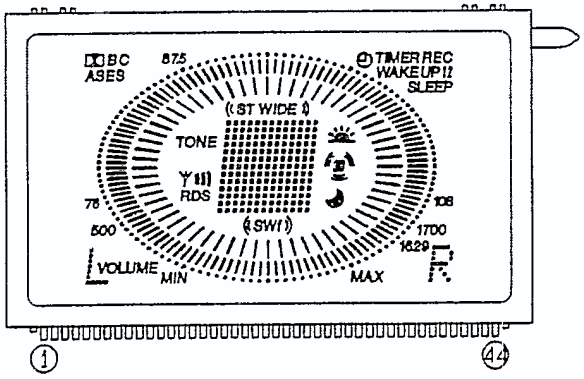








● Pin Assignment



● Anode Connection

	G7	G8	G9	G10
S16	◴	MIN MAX	SWf L R	⊠
S17	TIMER REC	ST WIDE	* ((SWf))	B
S18	WAKE UP	* ((ST WIDE))	* ((SWf))	C
S19	* WAKE UP1	RDS	1629	76 87.5 108
S20	* WAKE UP 2	* RDS	1700	
S21	SLEEP		500	
S22	TONE		VOLUME	
S23	■		ASES	

● Pin Connection

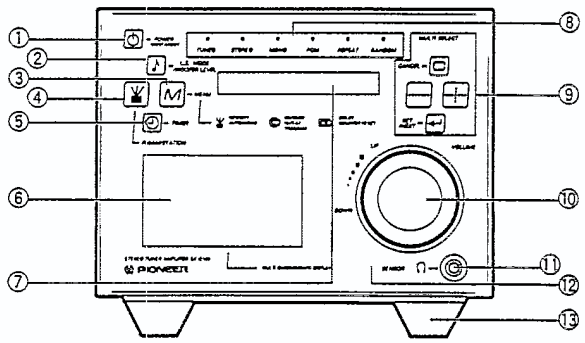
PIN ASSIGNMENT

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Assignment	F1	F1	G0	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15	S23	S22	S21	S20

Pin No.	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Assignment	S19	S18	S17	S16	S15	S0	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	F2	F2

F1, F2 : FILAMENT G0~G15 : GRID S0~S23 : ANODE

11. PANEL FACILITIES



① POWER switch
This is the switch for electric power.

ON:	When set to the ON position, power is supplied and the unit becomes operational.
STANDBY:	When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness. The receiver section display indicates only the time.

② Sound quality menu button

③ Operation menu button
- Tuner
- CD
- Cassette deck

④ Tuner button
- FM/AM
- STATION

⑤ TIMER button
- Time setting
- Timer operation

⑥ Multi Chronograph Display

⑦ Character display

⑧ Indicator lamps

TUNED:	Lights when receiving a broadcast.
STEREO:	Lights when receiving an FM stereo broadcast.
MONO:	Lights when the mode is set to play FM stereo in mono.
RT/PGM [PGM]:	Lights during FM broadcast reception if RT is selected in the RDS mode (U.K. model only). Lights during CD program play.
PS/RPT [REPEAT]:	Lights during FM broadcast reception if PS is selected in the RDS mode (U.K. model only). Lights during CD repeat play.
PTY/RDM [RANDOM]:	Lights during FM broadcast reception if PTY or PTY SEARCH is selected in the RDS mode (U.K. model only). Lights during CD random play.

[ ] indicates the U.S. model display.

⑨ Function operation buttons

⊖ ⊕ : Selection buttons

↵ : Set button

The demonstration is displayed if ↵ is pressed during power off (standby). The demonstration is cancelled if any other button is pressed.

⊟ : CANCEL button

⑩ VOLUME control

⑪ Headphones jack (Stereo mini-jack)

⑫ Remote control sensor (SENSOR)

⑬ Insulator plate
(Accessory: This plate is used when the system is arranged horizontally.)

12. SPECIFICATIONS

■ Amplifier section

<U.S. and Canadian models>
[Main L & R channels]

Continuous Average Power is 20 Watts* per channel, min., at 8 ohms from 200 Hz to 20,000Hz with no more than 0.9% total harmonic distortion.**

[Subwoofer channel]

Continuous Average Power is 40 Watts*, min., at 4 ohms from 40Hz to 200 Hz with no more than 0.9% total harmonic distortion.**

* Measured pursuant to the Federal Trade Commissions's Trade Regulation rule on Power Output Claims for Amplifier.
** Measured by audio spectrum analyzer.

Continuous power output (RMS)
- Main channels ..... 35 W+35 W (1 kHz, T.H.D.10 % 8 Ω)
- Subwoofer channel ..... 55 W (100 Hz, T.H.D.10 % 4 Ω)

<U.K. model>
Continuous power output (DIN)
- Main channels ..... 20 W+20 W (1 kHz, T.H.D.1 % 8 Ω)
- Subwoofer channel ..... 45 W (100 Hz, T.H.D.1 % 4 Ω)

Music power (DIN) ..... 200 W (Total)

■ FM tuner section

Reception frequency range ..... 87.5 — 108 MHz
Signal-to-Noise Ratio ..... MONO: 76 dB
Signal-to-Noise Ratio (DIN) ..... MONO: 66 dB
Antenna input .....75 Ω unbalanced

■ AM tuner section

Reception frequency range ..... 531—1602 kHz (9 kHz steps)
530—1700 kHz (10 kHz steps)
Antenna ..... Loop antenna

■ Electrical requirements, etc.

Power requirements
- U.S. and Canadian models ..... AC 120 V, 60 Hz
- U.K. model ..... a.c. 230 V, 50/60 Hz

Power consumption
- U.S. and Canadian models ..... 99 W
- U.K. model ..... 256 W

External dimensions
- Stereo tuner amplifier ..... 180 (W) x 133 (H) x 270.5 (D) mm
  7-1/16 (W) x 5-1/4 (H) x 10-5/8 (D) in.
  (without insulator plate)
  180 (W) x 148 (H) x 270.5 (D) mm
  7-1/16 (W) x 5-13/16 (H) x 10-5/8 (D) in.
  (with insulator plate)

Weight
- Stereo tuner amplifier..... 4.2 kg (9 lb 4 oz)

NOTE:
The specifications and design of this product are subject to change without notice, due to improvement.